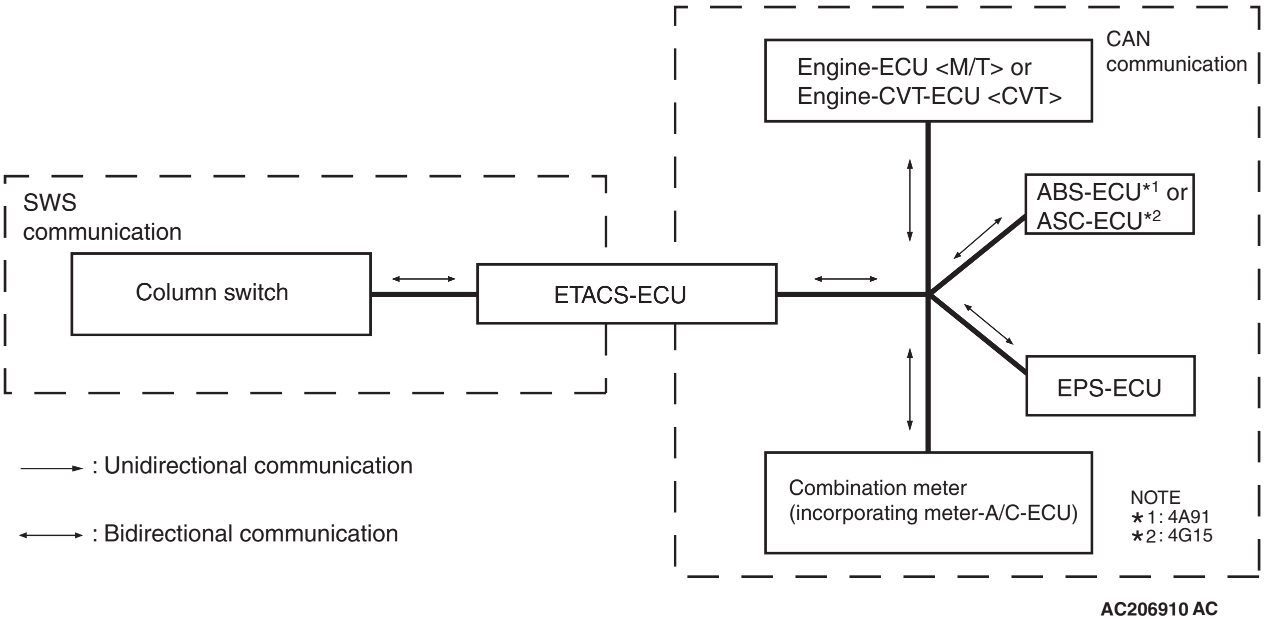
GROUP 54B

SMART WIRING SYSTEM (SWS) NOT USING SWS MONITOR

CONTENTS

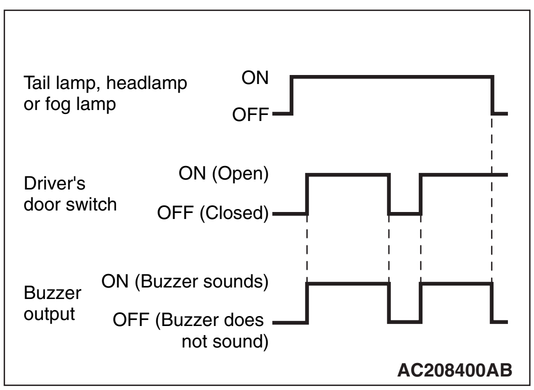
GENERAL INFORMATION

M1549000101268



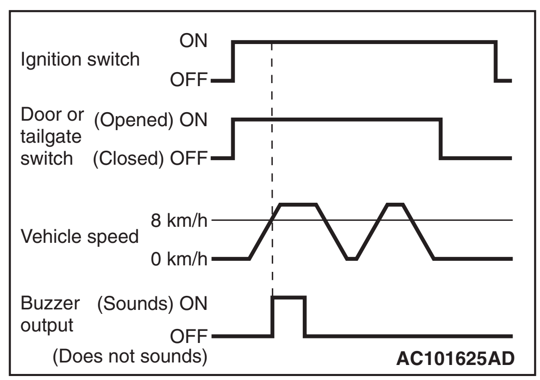
BUZZER

LAMP REMINDER BUZZER FUNCTION



When the ignition key is removed and then the driver's door is opened with turning ON the tail lamp, fog lamp or head lamp, the buzzer sounds continuously to alert the driver that the lamp is still ON. However, if the tail lamp or the headlamp is turned off by the headlamp automatic-shutdown function, the buzzer does not sound.

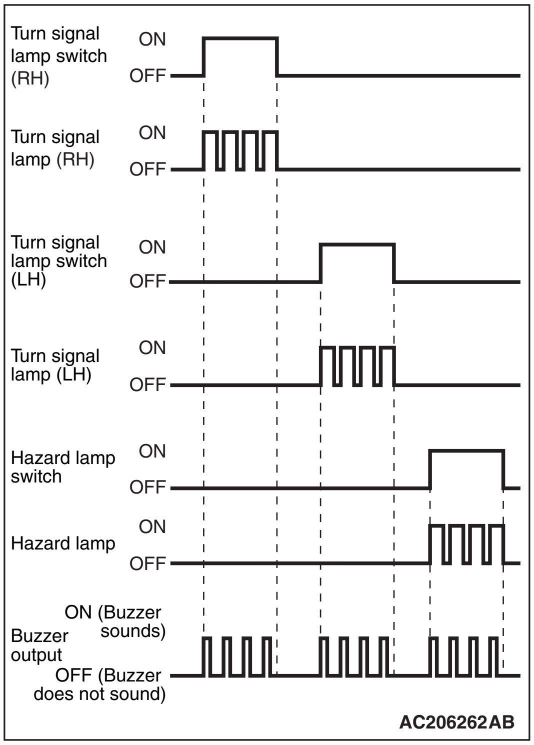
DOOR-AJAR WARNING BUZZER FUNCTION (THE INITIAL CONDITION: WITH FUNCTION)



If the vehicle speed sent from the combination meter via CAN communication exceeds 8 km/h when a door is open for one second or more, the ETACS-ECU makes the door ajar indicator lamp flash 16 times and activates the buzzer (beeping 16 times) to inform the driver that a door is open.

NOTE: Availability of the door-ajar alarm function can be selected by the customise function.

TURN-SIGNAL LAMP OPERATION SOUND FUNCTION (THE INITIAL CONDITION: WITHOUT FUNCTION)

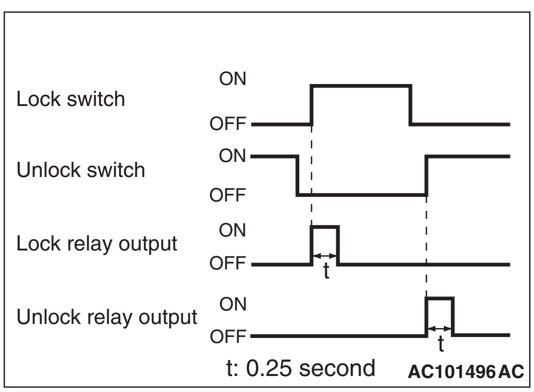


ETACS-ECU buzzer sounds simultaneously with the blinks of the turn-signal lamp and the hazard lamp.

NOTE: . Availability of the turn-signal lamp operation tone function can be selected by the customise function.

CENTRAL DOOR LOCKING SYSTEM

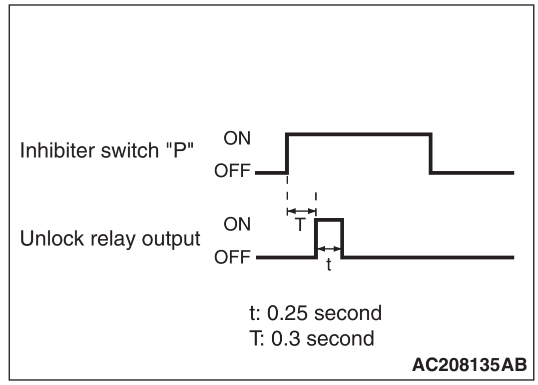
CENTRAL DOOR LOCKING CONTROL FUNCTION



When the front doors are locked (when the lock switch turns ON after turning OFF the unlock switch in the driver's door lock actuator), ETACS-ECU turns ON the lock relay output for 0.25 second, and locks all doors (including the tailgate).

When the front doors is unlocked (when the unlock switch turns ON after turning OFF the lock switch on the driver's door lock actuator), ETACS-ECU turns ON the unlock relay output for 0.25 second, and unlocks all doors (including the tailgate).

SHIFT "P" POSITION LINKED DOOR UNLOCK FUNCTION (THE INITIAL CONDITION: WITH FUNCTION) <CVT>

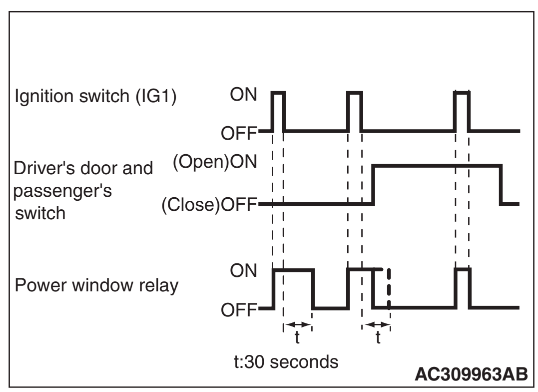


When the selector lever is shifted to "P" position (parking) (inhibitor switch "P" is ON) with the ignition switch turned to the ON position, the ETACS-ECU turns on the unlock relay output for 0.25 second (0.3 second after the selector lever operation) and unlocks all the doors (including the tailgate).

NOTE: Using a customisation function, this function can be enabled or disabled. For more information about the customisation function.

POWER WINDOW

POWER WINDOW TIMER FUNCTION



When the power window relay is turned ON with the ignition switch ON, the power window relay is kept ON for 30 seconds even after the ignition switch is turned OFF, enabling the door window to be opened and closed with the power window switch.

If the driver's or the front passenger door is opened during timer operation, the power window relay is turned OFF at the same time.

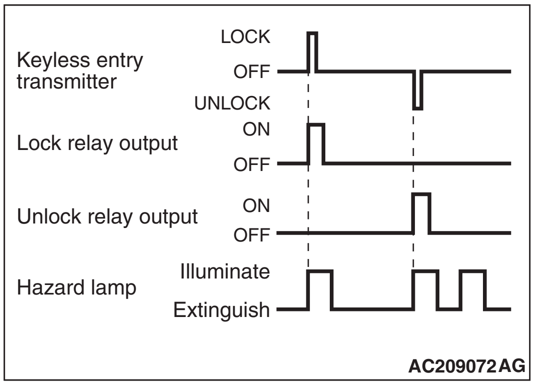
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KEYLESS ENTRY SYSTEM

MULTI-MODE KEYLESS ENTRY SYSTEM

The door mirrors can be operated by the keyless entry transmitter operation.

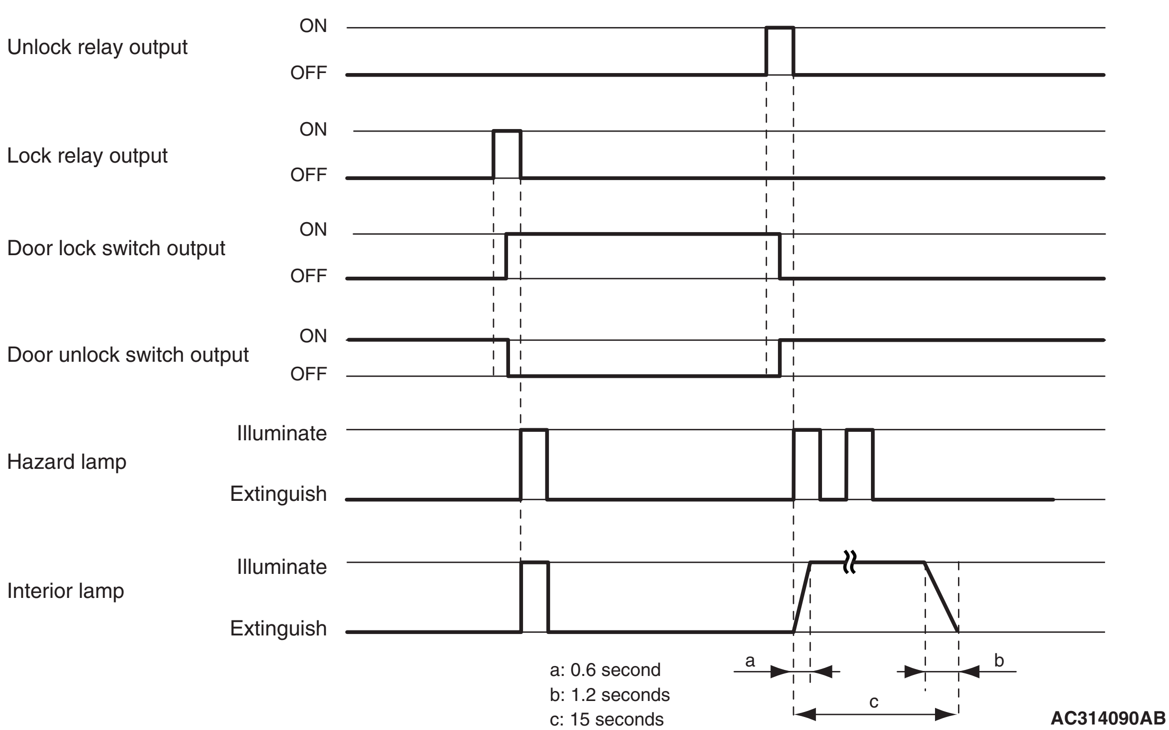
KEYLESS ENTRY HAZARD ANSWERBACK FUNCTION (INITIAL SETTING: LOCK, FLASH ONCE, UNLOCK, FLASH TWICE)



The hazard answer back function that allows checking the lock/unlock state of the door easily even in the daytime is installed. When the lock signal from the keyless entry transmitter is received into ETACS-ECU, all doors (including the tailgate) are LOCK, and the turn signal lamp blinks once. When the unlock signal is received, all doors (including the tailgate) are UNLOCK, and the turn-signal lamp blinks twice.

NOTE: The answer back blink time can be adjusted by the customise function.

KEYLESS ENTRY ROOM LAMP ANSWERBACK FUNCTION (INITIAL SETTING: LOCK FLASH ONCE, UNLOCK ILLUMINATES FOR 15 SECONDS)

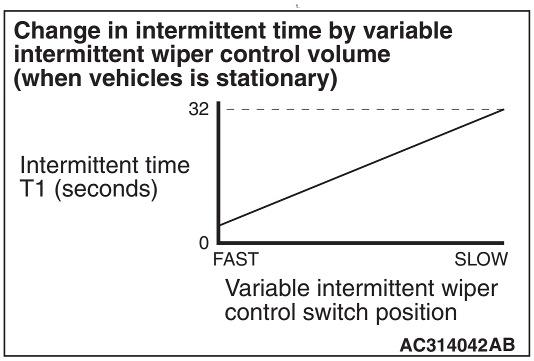


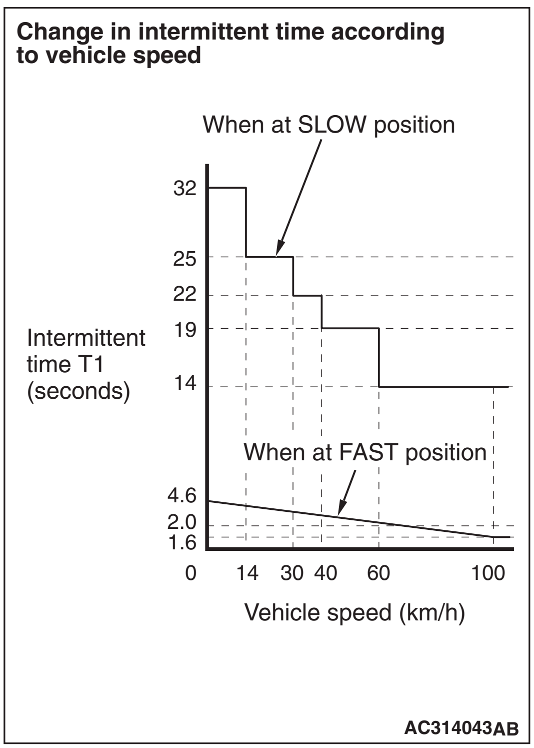
When the ETACS-ECU receives the lock signal from the keyless entry transmitter, all doors (including tailgate) is locked and the interior lamp flashes once in synchronization with the hazard lamp operation. When the ETACS-ECU receives the unlock signal, all doors (including tailgate) is unlocked. The interior lamp fades in, keeps on, and fades out in 15 seconds after the door unlock relay is operated. (15 seconds including fading period)

NOTE: The answerback blink time can be adjusted by the customize function.

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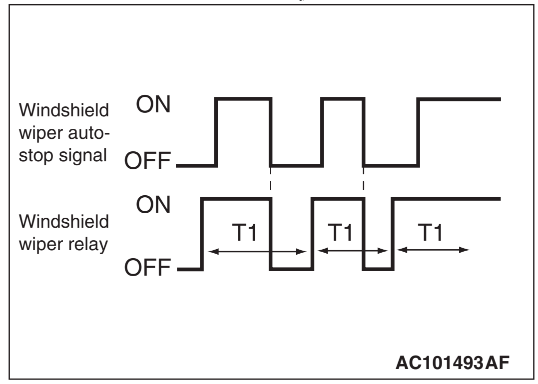
WINDSHIELD WIPER AND WASHER INTERMITTENT CONTROL <VEHICLE SPEED-DEPENDENT VARIABLE TYPE> (THE INITIAL CONDITION: WITH FUNCTION)





The ETACS-ECU calculates the windshield intermittent wiper interval T1 from the windshield intermittent wiper volume and vehicle speed signal (sent from the combination meter to the ETACS-ECU via CAN communication).

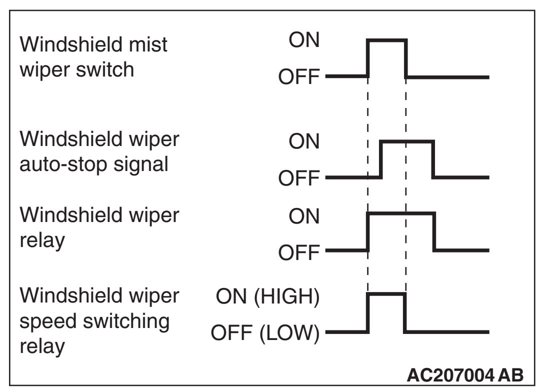
NOTE: The vehicle speed-sensitive function can be adjusted by the customise function.



When ETACS-ECU receives the windshield intermittent wiper switch ON signal from the column switch while the ignition switch is in the ACC or ON position, it turns the windshield wiper relay ON to operate the windshield wiper at low speed.

3. When the windshield wiper comes to the stop position, the windshield wiper auto stop signal turns OFF. Then the windshield wiper relay will turn OFF, and the windshield wiper stops operating.
4. When the intermittent time T1 has elapsed after the windshield wiper relay was turned OFF, ETACS-ECU turns ON the windshield wiper relay again and repeats the above procedure.

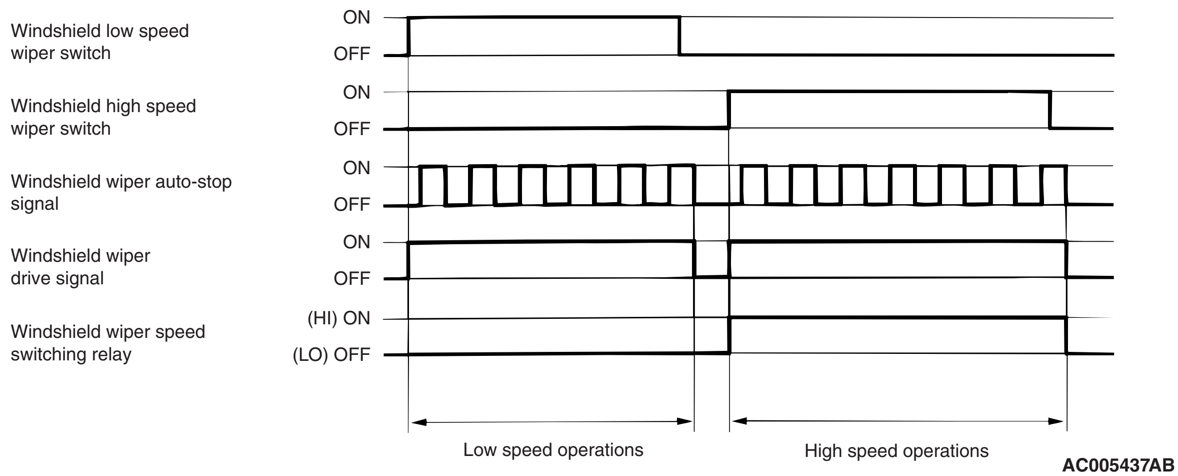
MIST WIPER CONTROL



When the windshield mist wiper switch of the column switch is turned ON with the ignition switch in the ACC or ON position, ETACS-ECU turns ON the windshield wiper drive signal. At the same time, the wiper speed switch relay turns to ON (HIGH). When the windshield mist wiper switch is ON, the windshield wiper operates at the high speed.

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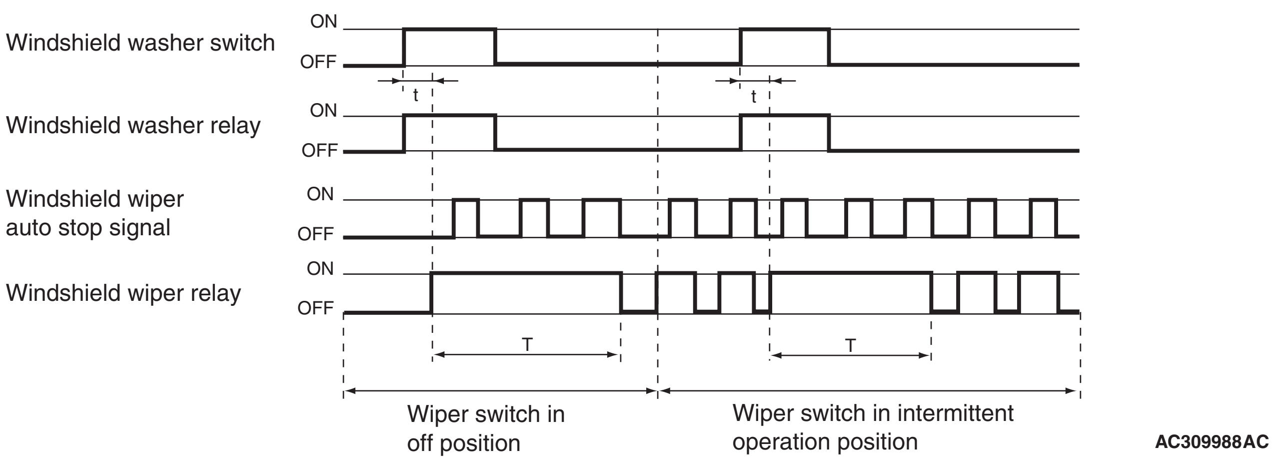
LOW SPEED WIPER AND HIGH SPEED WIPER CONTROL



When the windshield low speed wiper switch of the column switch is turned ON while the ignition switch is ACC or ON, the column switch turns ON the windshield wiper drive signal. Also, the wiper speed switching relay turns to OFF (LO), and the windshield wiper operates at the low speed.

When the windshield high speed wiper switch is turned ON, the windshield wiper drive signal turns ON. Also, the wiper speed switching relay turns ON (HI), and the windshield wiper operates at the high speed.

WINDSHIELD WIPER LINKED WITH WASHER FUNCTION (INITIAL CONDITION: WITH THE WINDSHIELD WIPER LINKED WITH WASHER FUNCTION)



t: 0.2 or 0.3 second
T: Intermittent wiper intermittent time

Wiper switch	OFF position			Intermittent operation position				Low-speed or high-speed operation position
Washer switch ON time (t)	0.3 second or less	0.3 to 0.5 second	0.5 second or more	0.2 seconds or less	0.2 to 0.4 second	0.4 to 0.6 second	0.6 second or more	–
T	0 second	2 seconds	3 seconds	0 second	1 second	2 seconds	3 seconds	3 seconds

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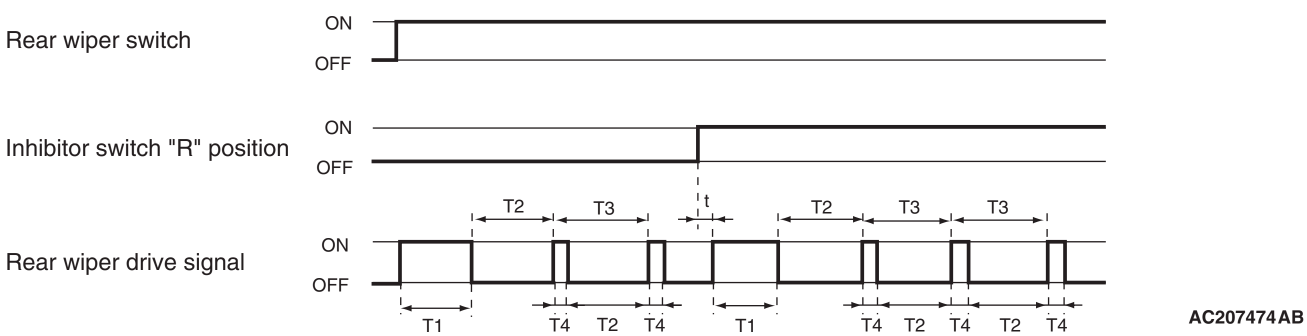
When the windshield washer switch in the column switch is turned ON with the ignition switch in the ACC or ON position, the ETACS-ECU turns ON the windshield washer relay.
When the windshield washer switch is kept ON for 0.3 seconds, the windshield wiper drive signal (the wiper drive signal output time varies depending on the conditions. For details, refer to the tables) is turned ON, and the windshield wiper is operated at high speed. Three seconds after turning OFF the windshield washer switch, the windshield wiper turns OFF.
Even when the windshield washer switch is turned ON while the windshield wiper is operating intermittently, the intermittent action is kept after the linked operation is finished.

If the ignition switch is set to the ACC position while the windshield washer switch is being turned ON, the windshield washer relay becomes ON, but the windshield wiper does not start the linked operation.
When the windshield washer switch is turned OFF and then ON again, the windshield wiper makes the linked operation.

NOTE:
- *Using a customisation function, the driver can enable or disable the windshield wiper linked with washer function. For more information about the customisation feature.*
- *When the windshield wiper linked with washer function is disabled by the customisation feature, the windshield wiper does not operate in synchronization with the windshield washer. However, the windshield washer can be activated. It is useful to melt down the ices of the frozen windshield.*

REAR WIPER AND WASHER

REAR WIPER CONTROL [THE INITIAL CONDITION: 8 SECONDS (WITHOUT SUCCESSIVE OPERATIONS)]



t: 1.0 second
T1: 3.0 seconds
T2: 7.4 seconds
T3: 8.0 seconds
T4: 0.6 second

1. When the rear wiper switch on the column switch is turned ON with the ignition switch at the ACC or ON position, ETACS-ECU turns ON the rear wiper drive signal for 3 seconds (approximately 2 operations) and performs the intermittent action at 8-second intervals.

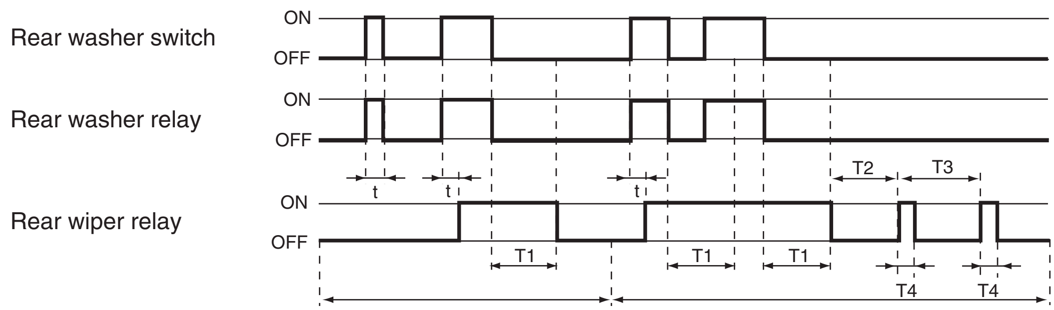
When the selector lever is moved to R position during the rear wiper operation, the inhibitor switch R position turns ON one second after that, ETACS-ECU sends the rear wiper drive signal for 3 seconds (approximately 2 operations), and operates the intermittent action in 8 seconds interval. <CVT>

2. By the special operation of the rear wiper switch on the column switch (successive 2-time operations), the rear wiper operates continuously regardless of the set intermittent time.

NOTE: The rear wiper intermittent time can be adjusted or cancelled for continuous operation by the customise function.

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REAR WIPER LINKED WITH WASHER FUNCTION (THE INITIAL CONDITION: WITH FUNCTION)



t : 0.3 second
T1 : 3 seconds
T2 : 7.4 seconds
T3 : 8 seconds
T4 : 0.6 second

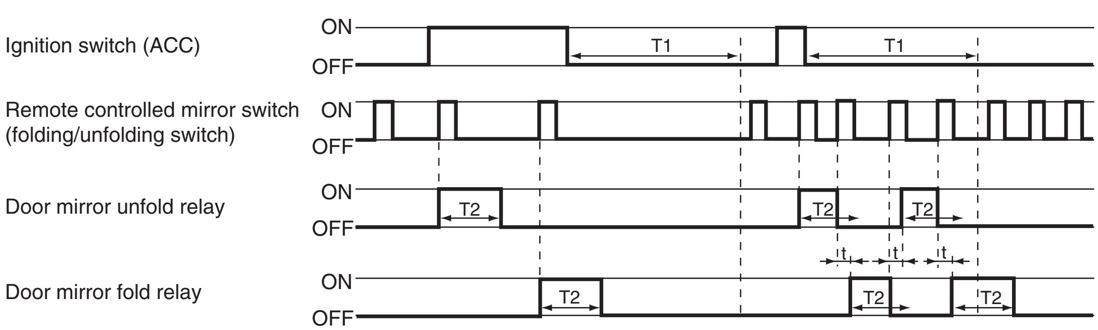
AC207003AB

- When the rear washer switch on the column switch is turned ON with the ignition switch ACC or ON, ETACS-ECU turns ON the rear washer relay. When the rear washer switch signal from the column switch remains ON for 0.3 seconds or more, ETACS-ECU turns ON the rear wiper relay to operate the rear wiper continuously. When the rear washer switch is turned OFF, the ETACS-ECU turns OFF the rear wiper relay 3 seconds later. Then the rear wiper stops at the auto stop position.
- Even turning ON the rear washer switch during rear wiper operation causes the rear wiper relay to switch the operation to continuous operation, and then the rear wiper resumes intermittent operation at intervals of eight seconds, 7.4 seconds after the completion of the continuous operation.

NOTE: Using a customisation function, a driver can enable or disable the rear wiper linked with washer function. For more information about the customisation feature.

ELECTRIC RETRACTABLE REMOTE CONTROLLED MIRROR

ELECTRIC RETRACTABLE REMOTE CONTROLLED MIRROR TIMER FUNCTION



t: 0.1 second
T1: 30 seconds
T2: 16 seconds

AC309810AC

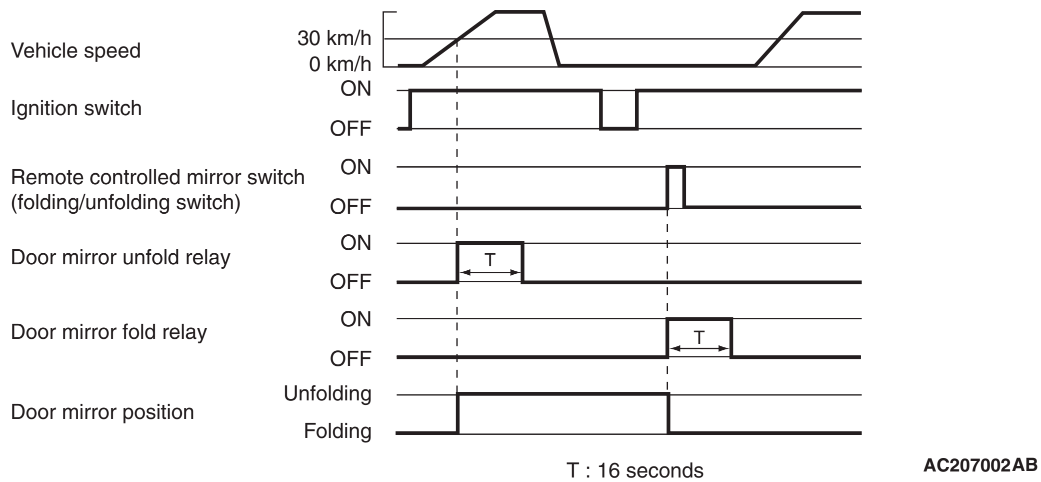
When the unfolding/folding switch on the fold switch remote controlled mirror switch is turned ON with the ignition switch at the ACC or ON position, the door mirror unfold relay or fold relay is turned on for 16 seconds to unfold or fold the door mirrors. Even after the ignition switch is turned OFF, the door mirrors can operate for 30 seconds.

If the unfolding/folding switch on the remote controlled mirror switch is turned ON while one of the door mirror unfold relay or door mirror fold relay is in operation, the other relay for the opposite motion is turned ON after 0.1 second.

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NOTE: Whether the door mirrors are at the unfolding or folding position is determined according to the memory of the door mirror fold relay operated previously. For this reason, if the door mirrors are manually retracted, they may not move when the unfolding/folding switch on the fold switch remote controlled mirror switch is pressed next time.

AUTOMATIC UNFOLDING FUNCTION



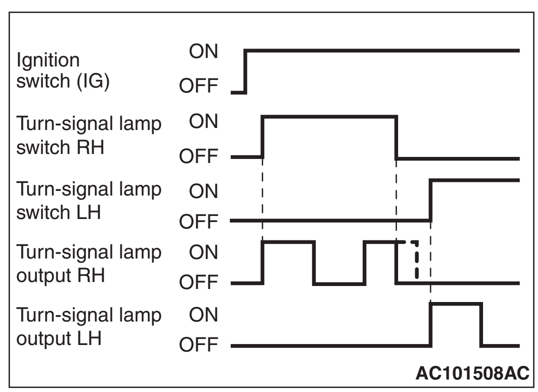
Vehicle speed-dependent automatic unfolding function

When the vehicle speed reaches 30 km/h, with the ignition switch ON and the mirrors retracted, ETACS-ECU turns on the retraction mirror relay (unfolding) for 16 seconds to return the door mirrors. However, the door mirrors do not return to their normal positions automatically if the ignition switch is turned from OFF to ON, and then the unfolding/folding switch on the remote controlled mirror switch is operated.

NOTE: Whether the door mirrors are at the unfolding or folding position is determined according to the memory of the retraction mirror relay operated previously. For this reason, if the mirrors are manually retracted, they may not move when the unfolding/folding switch is pressed next time.

FLASHER TIMER FUNCTION

TURN-SIGNAL LAMP (INITIAL SETTING: TURN SIGNAL LAMP CAN BE OPERATED WHEN THE IGNITION SWITCH IS IN THE ON POSITION)



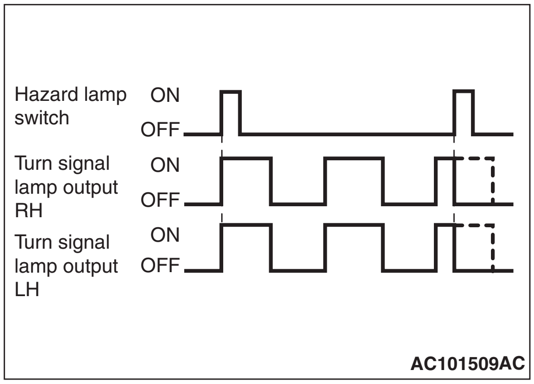
When the turn-signal lamp switch is ON (LH or RH) with the ignition switch is ON, the turn-signal lamp output (flash signal) is turned ON.

If the lamp bulb of the front or rear turn-signal lamp has burned out, the flashing speed becomes faster to alert the driver that the lamp bulb has burned out.

NOTE: Using a customisation function, this function becomes available even when the ignition switch is in the ACC position. For more information about the customisation feature.

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HAZARD LAMP



When the hazard lamp switch input signal turning from OFF to ON is detected, the flashing states turns over by the signal (When the hazard lamp is not blinking, it blinks. If it is blinking, it turns off).

NOTE:

1. *The push-return switch is adopted for the hazard lamp switch.*
2. *Even if the lamp bulb has burned out, the flashing speed of the hazard lamp is not changed.*

TURN-SIGNAL LAMP INDICATOR

The ETACS-ECU sends the turn signal lamp indicator ON signal to the combination meter through CAN communication in synchronization with the turn signal lamp operation. The combination meter receives the transmitted signal and turns ON or OFF the turn-signal lamp indicator.

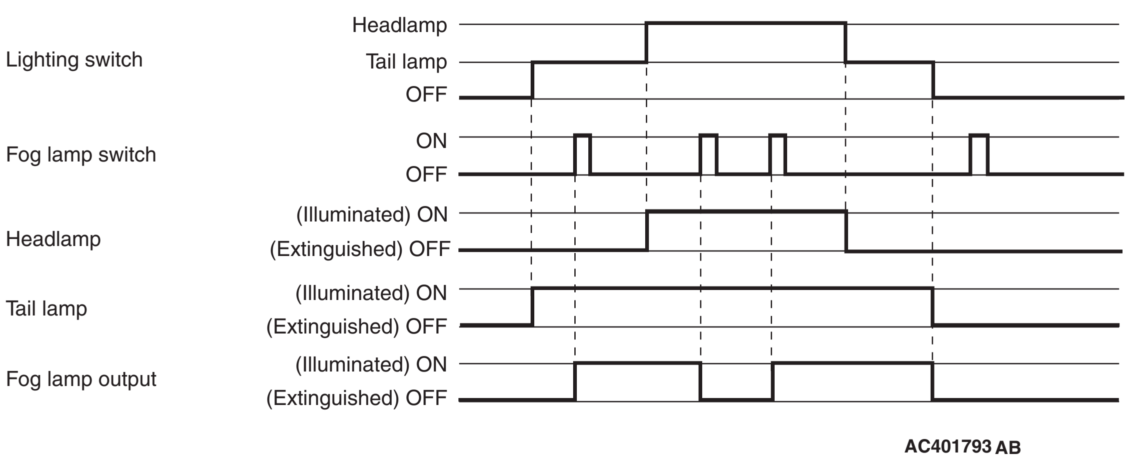
HEADLAMP

HIGH-BEAM INDICATOR

The ETACS-ECU sends the high beam indicator ON signal to the combination meter through CAN communication in synchronization with the high beam headlamp operation. The combination meter receives the transmitted signal and turns ON or OFF the high beam indicator.

FOG LAMP

FOG LAMP CONTROL



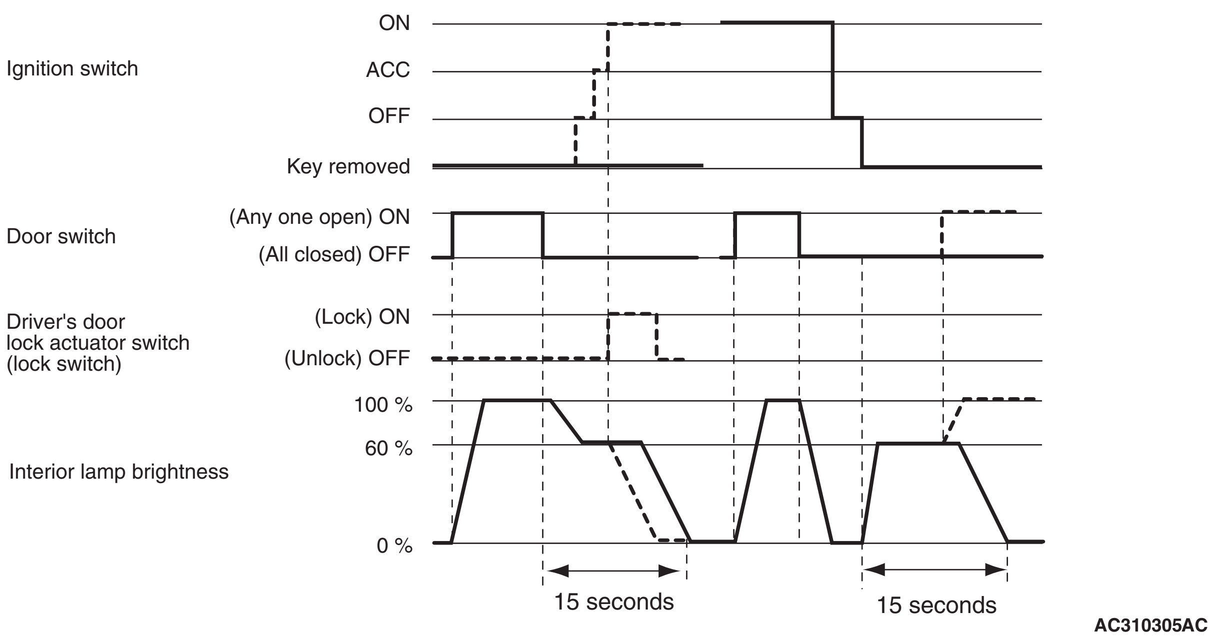
When the fog lamp switch is turned to ON with the tail lamp or the headlamp lit (the tail lamp switch or the headlamp switch is ON), the fog lamp relay turns ON, and the fog lamps turn on.
If the tail lamp or the headlamp is turned off with the lighting switch OFF while the fog lamps lit, the fog lamps turn off the same time to prevent unattended operation.

FOG LAMP INDICATOR

The ETACS-ECU sends the fog lamp indicator ON signal to the combination meter through CAN communication in synchronization with the fog lamp operation. The combination meter receives the transmitted signal and turns ON or OFF the fog lamp indicator.

INTERIOR LAMP

INTERIOR LAMP DIMMER CONTROL FUNCTION (THE INITIAL CONDITION: 15 SECONDS)



When the interior lamp switch is on the door position, ETACS-ECU controls the interior lamp lamps as follows.

1. When the ignition switch is OFF:

By opening any door or tailgate, the lamp turns ON (100%), and dims (60%) when the door or tailgate is closed, then and turns off after 15 seconds.

However, when the ignition switch is turned ON or the door lock is operated, the lamps turn off at that time.

2. When the ignition switch is ON:

By opening any door or tailgate, the lamp (100%) turns ON and OFF when the door or tail gate is closed.

3. When all doors and the tailgate are closed, and the ignition key is removed:

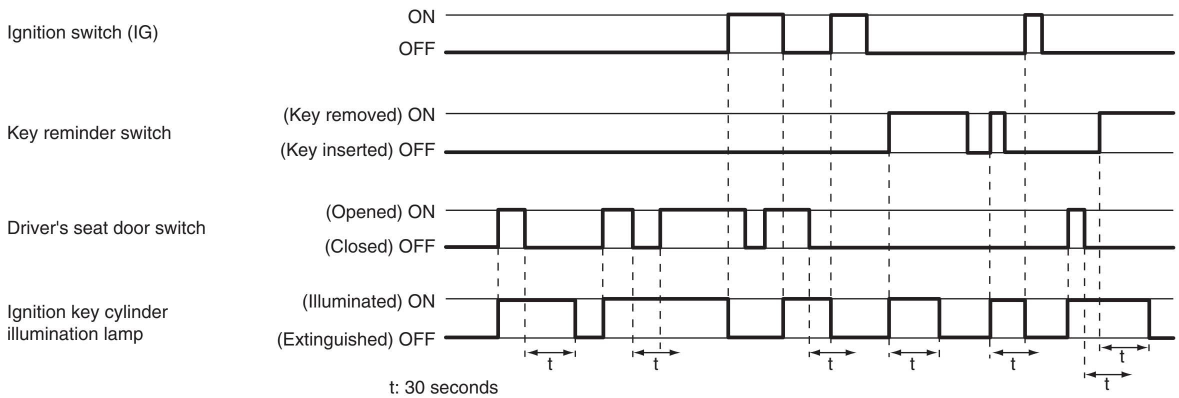
By removing the ignition key with all doors and the tailgate closed, the lamp turns ON 60%, and turns off after 15 seconds.

By inserting the ignition key again or operating the door lock with the lamp lit, the lamps turns off.

NOTE: For the vehicles with the keyless entry system, the delayed lamp-off time and the operation times of the keyless entry interior lamp answer back can be changed by the customise function.

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IGNITION KEY CYLINDER ILLUMINATION LAMP CONTROL FUNCTION



AC314095AB

The ETACS-ECU controls the ignition key cylinder illumination lamp and foot lamp as described below.

1. The ignition key cylinder illumination lamp and for 30 seconds when the driver's door is opened/closed with the ignition switch OFF.
2. Also when the ignition key is removed from the ignition key cylinder, the lamp illuminates for 30 seconds.
3. When the ignition key cylinder illumination lamp is operating with the doors closed, it goes out if the ignition switch is turned ON.

DOOR-AJAR INDICATOR

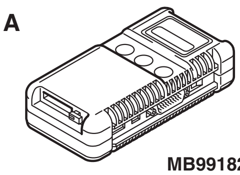
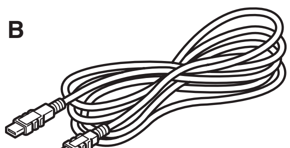
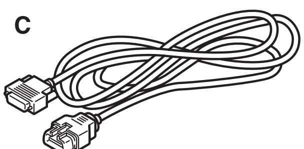
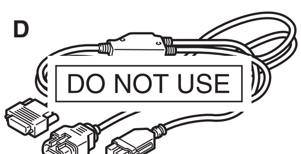
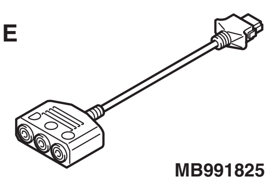
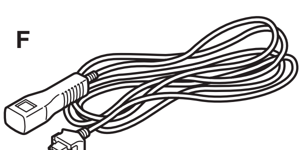
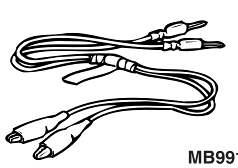
The ETACS-ECU sends the open/close status of each door to the combination meter through CAN communication. The combination meter receives the transmitted signal and turns ON and OFF the door-ajar indicator. The door-ajar indicator flashes when the door-ajar warning function is activated while the door-ajar indicator is ON (For more information about the door-ajar warning function).

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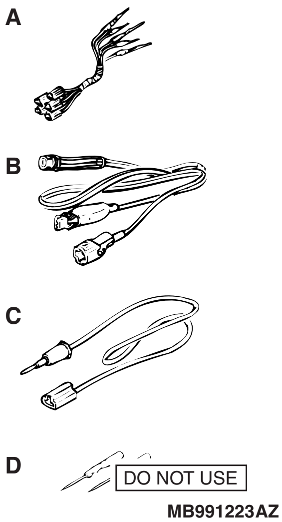
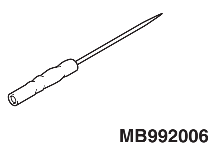
Group TOC

SPECIAL TOOLS

M1549000301080

Tool	Number	Name	Use
A  MB991824 B  MB991827 C  MB991910 D  MB991911 E  MB991825 F  MB991826 MB991955	MB991955 A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991825 F: MB991826	M.U.T.-III sub-assembly A: Vehicle communication interface (V. C. I.) B: M.U.T.-III USB cable C: M.U.T.-III main harness A (Vehicles with CAN communication system) D: M.U.T.-III main harness B (Vehicles without CAN communication system) E: M.U.T.-III measurement adapter F: M.U.T.-III trigger harness	SWS communication line check (ECU check and service data) ⚠ **CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B should not be used for this vehicle.**
 MB991529	MB991529	Diagnosis code check harness	Input signal check by using a voltmeter

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Tool	Number	Name	Use
	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test harness B: LED harness C: LED harness adapter D: Probe	Continuity check and voltage measurement at harness wire or connector A: For checking connector pin contact pressure B: For checking power supply circuit C: For checking power supply circuit D: For connecting a locally sourced tester
	MB992006	Extra fine probe	Continuity check and voltage measurement at harness wire or connector

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TROUBLESHOOTING

PRIOR TO TROUBLESHOOTING

M1549014700787

Before carrying out troubleshooting, check the following two items.

- Make sure that the ETACS-ECU and the junction block (J/B) are connected securely.
- Check that the system fuses and fusible links are not burned out.

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1549000500973

Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – Contents of Troubleshooting P.00-5.

ACTUATOR TEST REFERENCE TABLE

M1549001000090

Item No.	Item name	Driven component
01	Rear wiper switch	Rear wiper
02	Front wiper switch	Front wiper (LO)
03	High-speed wiper switch	Front wiper (HI)
04	Rear washer switch	Rear washer
05	Front washer switch	Front washer
06	Electric folding door mirror SW	Electric folding door mirrors (fold/unfold)
07	Centre door locking "LOCK" SW	Central door locking
08	Centre door locking "UNLOCK" SW	Central door unlocking
09	Turn-signal lamp (LH) switch	Turn-signal lamp (blinks)
10	Turn-signal lamp (RH) switch	
12	Tail lamp	Tail lamp (illuminates)
13	Headlamp	Headlamp (LO: illuminates)
14	Headlamp HI	Headlamp (HI: illuminates)
15	Fog lamp	Fog lamp (illuminates)
17	Turn-signal lamp (LH)	Turn-signal lamp (Illuminates)
18	Turn-signal lamp (RH)	
19	Buzzer	Buzzer (integrated into ETACS-ECU)
20	Room lamp 0%	Room lamp (turns off)
21	Room lamp 60%	Room lamp (60% illumination)
22	Room lamp 100%	Room lamp (100% illumination)
24	P/W multi-close	Multi-mode keyless (power windows closing)
25	P/W multi-open	Multi-mode keyless (power windows opening)
26	P/W multi-stop	Multi-mode keyless (power windows stop)

DIAGNOSTIC FUNCTION

M1549028900502

HOW TO READ DIAGNOSIS CODE

Use the M.U.T.-III to read diagnosis code (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – Diagnosis Function P.00-7).

NOTE: Connect the M.U.T.-III to the 16-pin diagnosis connector (black).

NOTE: A diagnosis code can not be read when the ETACS-ECU is defective or the power supply voltage has risen. In this case, refer to inspection procedure A-1 "Communication with the M.U.T.-III is not possible P.54B-40."

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HOW TO CHECK INPUT SIGNALS

1. Use the M.U.T.-III or a voltmeter to check input signals ((Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – Diagnosis Function P.00-7).
2. The input signals below can be checked by connecting the M.U.T.-III or a voltmeter to the diagnosis connector.

NOTE: If a fault is found at the input signal check, refer to trouble symptom chart P.54B-38.

SWITCHES WHICH ARE APPLICABLE TO INPUT SIGNAL CHECK, AND THEIR CHECK CONDITIONS

Input signals	Requirements for sounding buzzer
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position
Ignition switch (IG1)	When turned from ACC to ON
Inhibitor switch ("R" position) <CVT>	When the ignition switch is turned ON and the selector lever is moved to the R position.
Inhibitor switch ("P" position) <CVT>	When the ignition switch is turned ON and the selector lever is moved to the P position.
Key reminder switch	When the inserted ignition key is pulled out
Hazard warning lamp switch	When the switch is turned from off to on
Fog lamp switch	
Driver's door switch	When the driver's door is opened
Passenger's door switch	When the passenger's door is opened
All of the door switches	A door is opened when all the doors are closed
Tailgate switch	When the tailgate is opened
Driver's door lock actuator	When the driver's key cylinder or inside lock knob is unlocked or locked
Passenger’s door lock key cylinder switch	When the passenger’s key cylinder is unlocked or locked
Electric-folding outside mirror switch	When the electric-folding outside mirror is operated
Vehicle speed signal	When the vehicle speed has reached 10 km/h or more

Input signals		Requirements for sounding buzzer
Column switch	Tail lamp switch	When the lighting switch is moved from the automatic lamp position to the tail lamp position.
	Headlamp switch	When the lighting switch is moved from the tail lamp position to the headlamp position.
	Dimmer switch	When the switch is turned from off to on
	Passing lamp switch	
	Turn-signal lamp switch (LH)	
	Turn-signal lamp switch (RH)	
	Wind shield mist wiper switch	
	Windshield intermittent wiper switch	
	Windshield low-speed wiper switch	
	Windshield high-speed wiper switch	
	Windshield intermittent wiper volume	When the windshield intermittent wiper volume is rotated from "FAST" to "SLOW" (a pulse is sent around the volume middle position)
	Windshield washer switch	When the switch is turned from off to on
	Rear wiper switch	
	Rear washer switch	
Keyless entry transmitter	Switches	When the switch is turned from off to on

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DIAGNOSIS CODE CHART

M1549000700977

Code No.	Diagnosis item	Reference page
U1700	Trouble in SWS communication line system	P.54B-19
U1701	Communication error with column switch	P.54B-20
U1073	Bus off	P.54B-24
U1100	Engine-ECU <M/T> or Engine-CVT-ECU <CVT> time-out (related to engine)	P.54B-24
U1101	Engine-CVT-ECU time-out (related to CVT) <CVT>	
U1102	ABS-ECU or ASC-ECU time-out	P.54B-26
U1110	Meter and A/C-ECU time-out (related to A/C)	P.54B-27
U1108	Meter and A/C-ECU time-out (related to meter)	
U1128	Meter and A/C-ECU failure information (related to meter)	P.54B-29
B1706	Blown fuse is detected in fuse No.31 (hazard fuse).	P.54B-30
B1707	Open circuit is detected in the flasher circuit.	P.54B-32
B1708	An open circuit is detected in the variable intermittent wiper control switch.	P.54B-33
B1709	ETACS-ECU internal error (EEPROM problem)	P.54B-34
B1710	ETACS-ECU internal error (ROM problem)	
B1711	ETACS-ECU internal error (RAM problem)	

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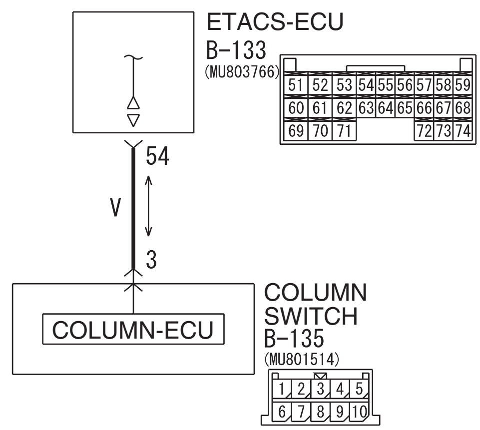
DIAGNOSIS TROUBLE CODE PROCEDURES

Diagnosis code No.U1700: Trouble in SWS communication line system

⚠ CAUTION

If diagnosis code No.U1700 is set in the ETACS-ECU, diagnose the CAN bus lines.

SWS Communication Line



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54L032A

TROUBLE JUDGMENT

The ETACS-ECU communicates with the column switch through the SWS communication line. If there is any trouble in the ETACS-ECU or the SWS communication lines, diagnosis code No.U1700 will be set.

COMMENT ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : . Go to Step 2.

NO : . Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13).

Step 2. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set.

(1) Erase the diagnosis code.

(2) Turn the ignition switch "LOCK" (OFF) position to "ON" position.

(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

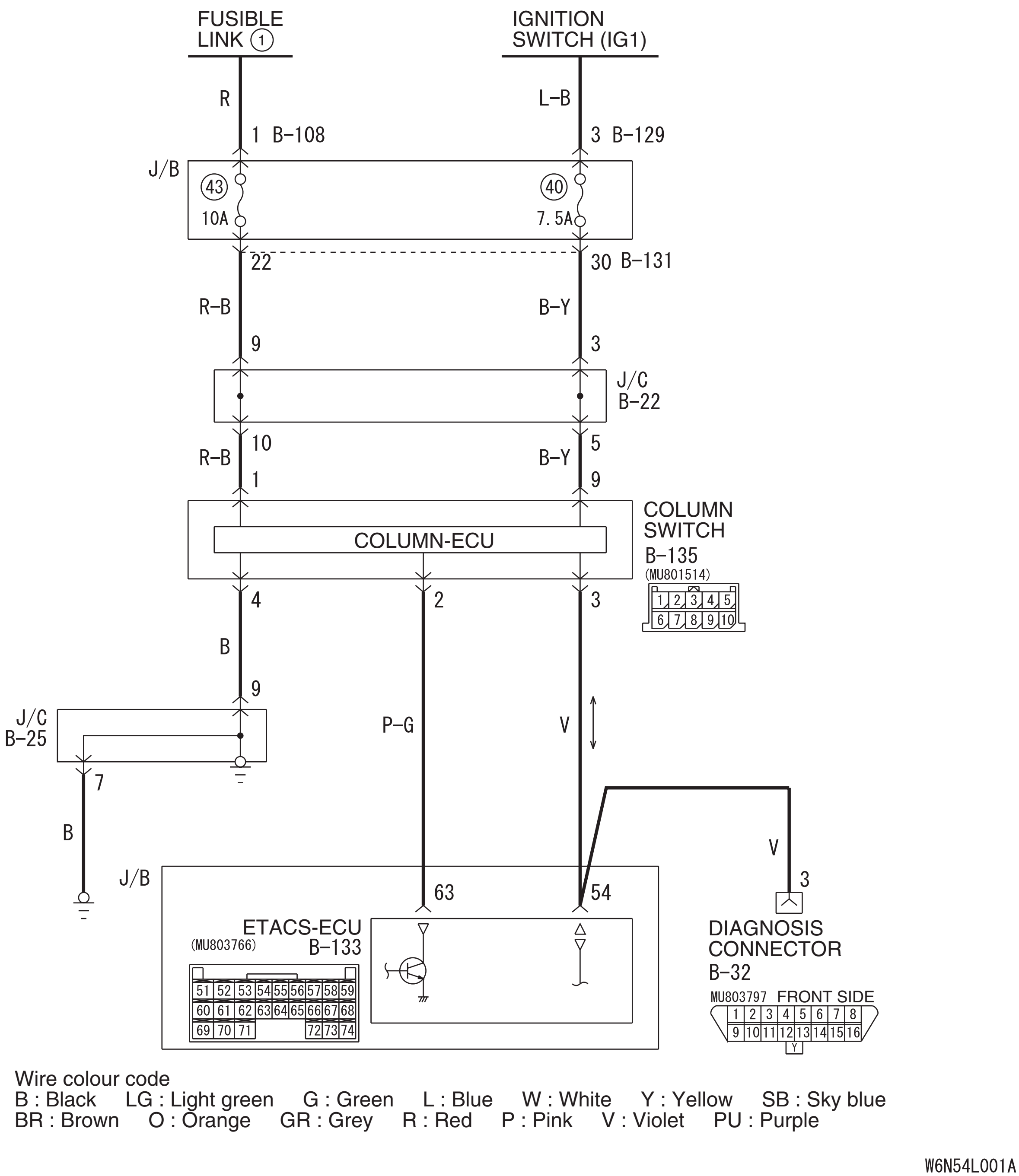
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Diagnosis code No.U1701: Communication error with column switch

⚠ CAUTION
If diagnosis code No.U1701 is set in the ETACS-ECU, diagnose the CAN bus lines.

Column Switch Power Supply and SWS Communication Circuit



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TROUBLE JUDGMENT

The ETACS-ECU communicates with the column switch through the SWS communication lines. If there is any trouble in that communication, diagnosis code No.U1702 will be set.

COMMENT ON TROUBLE SYMPTOM

The column switch, the ETACS-ECU, connector(s), or wiring harness between the two may be defective.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13).

Step 2. Use the M.U.T.-III to confirm a diagnosis code. (M.U.T.-III diagnosis code)

(1) Ignition switch: ON

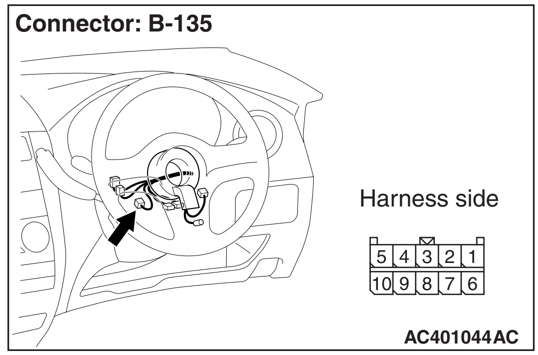
(2) On completion, check that diagnosis code No.U1701 is not reset.

Q: Is diagnosis code No.U1701 set?

YES : Go to Step 3.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

Step 3. Connector check: B-135 column switch connector

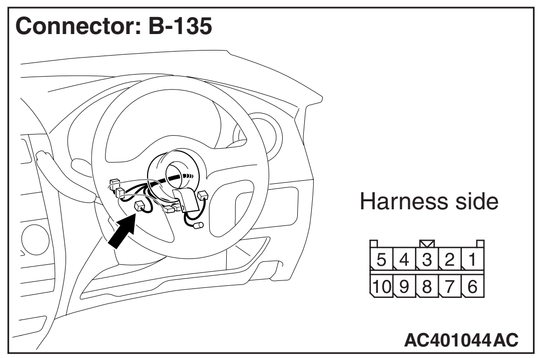


Q: Is the check result normal?

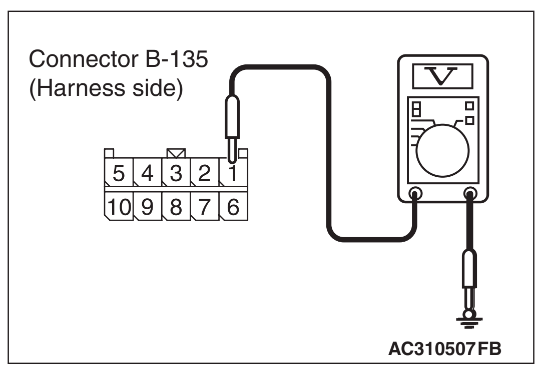
YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Voltage measurement at the B-135 column switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Voltage between B-135 column switch connector No.1 and body earth

OK: System voltage

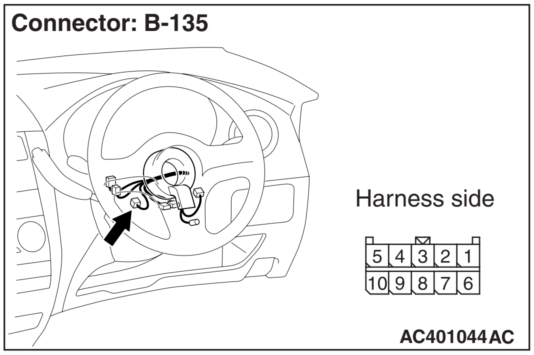
Q: Is the check result normal?

YES : Go to Step 6.

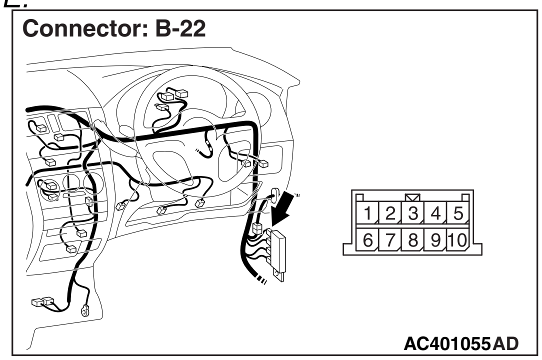
NO : Go to Step 5.

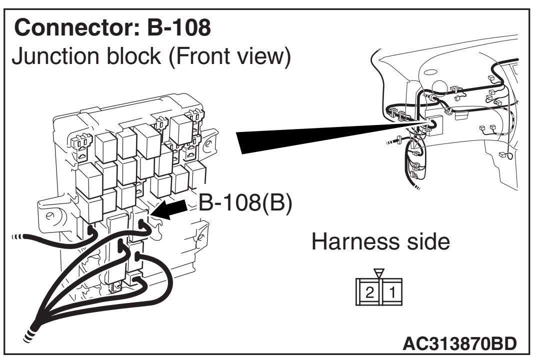
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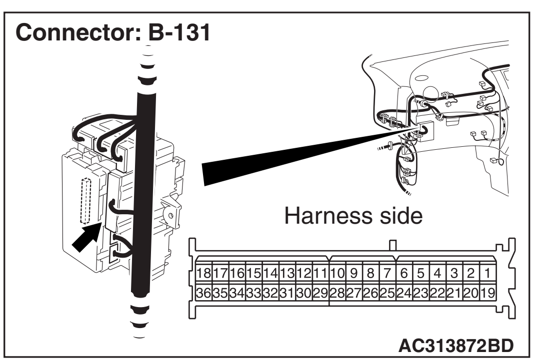
Step 5. Check the wiring harness between B-135 column switch connector terminal No.1 to fusible link (1).



NOTE:







Prior to the wiring harness inspection, check junction block connectors B-108, B-131 and joint connector B-22, and repair if necessary.

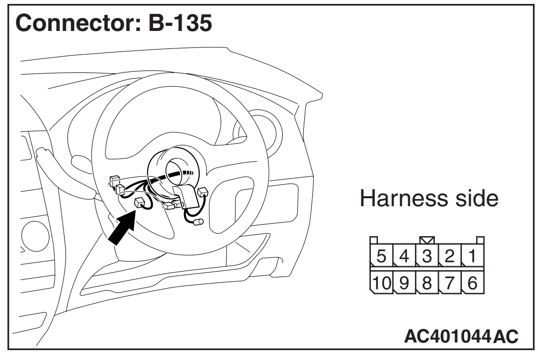
- Check the power supply line for open circuit.

Q: Is the check result normal?

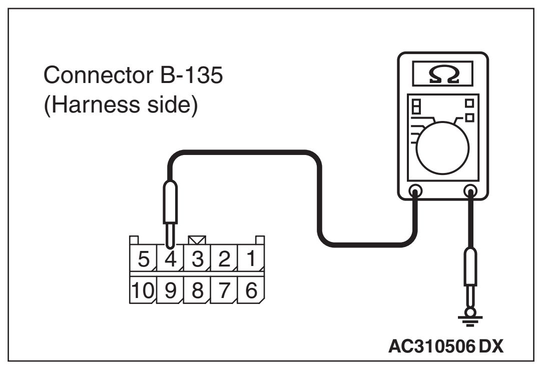
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 6. Resistance measurement at the B-135 column switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Continuity between B-135 column switch connector No.4 and body earth

OK: Continuity exists (2 Ω or less)

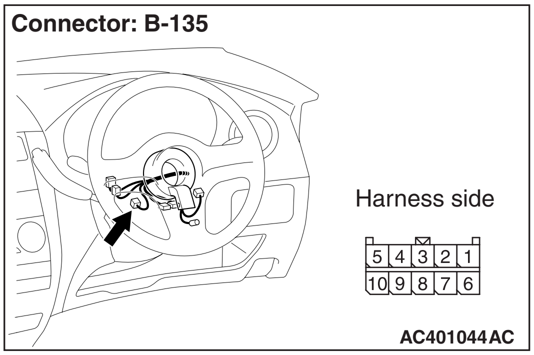
Q: Is the check result normal?

YES : Go to Step 9.

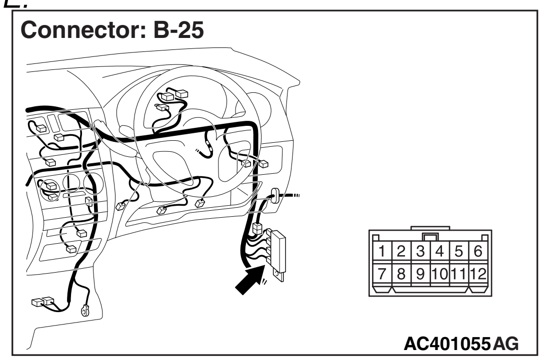
NO : Go to Step 7.

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Step 7. Check the wiring harness between B-135 column switch connector No.4 to body earth.



NOTE:



Prior to the wiring harness inspection, check joint connector B-25, and repair if necessary.

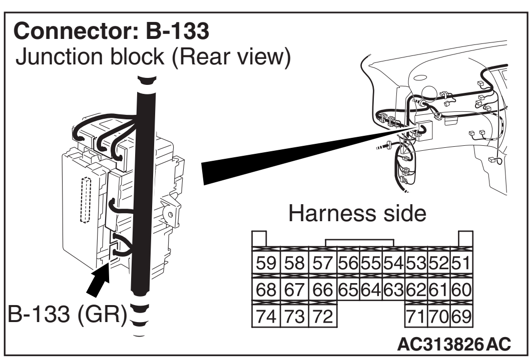
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness.

Step 8. Connector check: B-133 ETACS-ECU connector

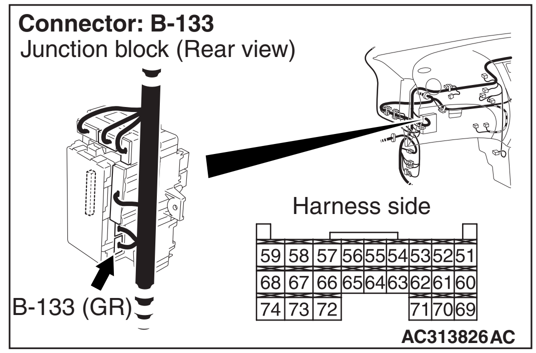


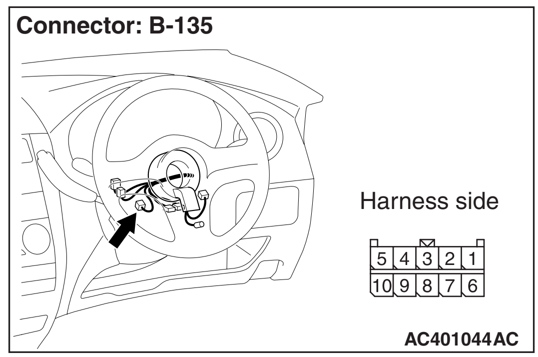
Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the defective connector.

Step 9. Check the wiring harness from B-133 ETACS-ECU connector terminal Nos. 54, 60 and 63 to B-135 column switch connector terminal Nos. 3, 10 and 2.





- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness.

Step 10. Check whether the diagnosis code is reset.

Replace the column switch, and then check that the diagnosis code is not reset.

(1) Replace the column switch.

(2) Ignition switch: ON

(3) On completion, check that diagnosis code No.U1701 is not reset.

Q: Is diagnosis code No.U1701 set?

YES : Replace the ETACS-ECU.

NO : The procedure is complete.

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Diagnosis code No.U1073: Bus off

⚠ CAUTION
If diagnosis code No.U1703 is set in the ETACS-ECU, diagnose the CAN bus lines.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

TROUBLE JUDGMENT

Diagnosis code No.U1703 will be stored when the ETACS-ECU ceases CAN communication (bus off) and then resumes the communication by turning the ignition switch to the "LOCK" (OFF) position.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the SWS communication lines may be defective.

POSSIBLE CAUSES

Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics
Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13). On completion, go to Step 3.

Step 2. Check whether the diagnosis code is reset.
Check again if the diagnosis code is set.
(1) Erase the diagnosis code.
(2) Ignition: LOCK (OFF) position to ON
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?
YES : If a trouble is solved, it is determined that there is an intermittent malfunction such as poor engaged connector(s) or open circuit (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU, and then go to Step 3.

Step 3. Check whether the diagnosis code is reset.
Recheck if the diagnosis code is set.
(1) Erase the diagnosis code.
(2) Ignition switch: LOCK (OFF) position to ON
(3) Check if the diagnosis code is set.

Q: Is diagnoscode No.U1073 set?
YES : Return to Step 1.
NO : The procedure is complete.

Diagnosis code No.U1100: Engine-ECU <M/T> or Engine-CVT-ECU <CVT> time-out (related to engine)
Diagnosis code No.U1101: Engine-CVT-ECU time-out (related to CVT) <CVT>

⚠ CAUTION
- **If diagnosis code No.U1100 or No.U1101 are set in the ETACS, diagnose the CAN main bus line.**
- **Whenever the ECU is replaced, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT

Diagnosis Code No.U1100
- The ETACS-ECU receives engine and transmission control signals from the engine-ECU <M/T> or engine-CVT-ECU <CVT> through the CAN bus lines. If the ECU can not receive the engine control system-related signal at all, diagnosis code No.U1100 will be set.

Diagnosis Code No.U1101
- The ETACS-ECU receives engine and transmission control signals from the engine-CVT-ECU through the CAN bus lines. If the ECU can not receive the transmission control system-related signal at all, diagnosis code No.U1101 will be set.

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COMMENTS ON TROUBLE SYMPTOM

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the ETACS-ECU and the engine-ECU <M/T> or engine-CVT-ECU <CVT>, the power supply circuits to these ECUs, or the ETACS-ECU itself may be defective.

Past trouble

- If diagnosis code No.U1100 and No.U1101 are set as past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus lines between the ETACS-ECU and the engine-ECU <M/T> or engine-CVT-ECU <CVT>, or power supply to the engine-ECU <M/T> or engine-CVT-ECU <CVT>. For diagnosis procedures, refer to "How to treat past trouble" (refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Treat Past Trouble P.00-13).

NOTE: For a past trouble, you can not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-13 and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the diagnosis code, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54D – CAN Bus Line Diagnosis Flow P.54D-7).

PROBABLE CAUSES

- Malfunction of the engine-ECU <M/T>
- Malfunction of the engine-CVT-ECU <CVT>
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13). Repair the CAN bus line.

Step 2. M.U.T.-III other system diagnosis code

Check whether the engine-ECU <M/T> or engine-CVT-ECU <CVT> sets a diagnosis code.

Q: Is the check result normal?

YES : Diagnose the engine or the CVT (Refer to GROUP 13A – Troubleshooting P.13A-20 <4A9>, GROUP 13B – Troubleshooting P.13B-18 <4G1>, or GROUP 23A – Troubleshooting P.23A-14 <CVT>).

NO : Go to Step 3.

Step 3. M.U.T.-III other system diagnosis code

Check whether the combination meter-related diagnosis code is set.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 5.

Step 4. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the engine-ECU <M/T> or engine-CVT-ECU <CVT>.

Step 5. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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Diagnosis code No.U1102: ABS-ECU or ASC-ECU time-out

⚠ CAUTION

- **If diagnosis code No.U1102 is set in the ETACS-ECU, diagnose the CAN bus lines.**
- **Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.**

TROUBLE JUDGMENT

The ETACS-ECU receives ABS or ASC system-related signals from the ABS-ECU or ASC-ECU. If meter-related signal can not be received at all, diagnosis code No.U1102 will be set.

COMMENT ON TROUBLE SYMPTOM

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the ABS-ECU or ASC-ECU and the ETACS-ECU, the power supply system to the ABS-ECU or ASC-ECU, the ABS-ECU or ASC-ECU itself, or the ETACS-ECU may be defective.

Past trouble

- If diagnosis code No.U1102 are stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the ABS-ECU or ASC-ECU and the ETACS-ECU, and the power supply system to the ABS-ECU or ASC-ECU. For diagnosis procedures, refer to "How to treat past trouble" (refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Treat Past Trouble P.00-13).

NOTE: For a past trouble, you can not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-13 and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the diagnosis code, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54D – CAN Bus Line Diagnosis Flow P.54D-7).

PROBABLE CAUSES

- Malfunction of the ABS-ECU
- Malfunction of the ASC-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13). On completion, go to Step 5.

Step 2. M.U.T.-III other system diagnosis code

Check if a ABS-ECU or ASC-ECU diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the ABS or ASC (Refer to GROUP 35B – Troubleshooting P.35B-7 <ABS> or GROUP 35C – Troubleshooting P.35C-6 <ASC>).
NO : Go to Step 3.

Step 3. M.U.T.-III other system diagnosis code

Check whether the combination meter sets ABS or ASC-related time-out diagnosis code.

Q: Is the diagnosis code set?

YES : Go to Step 4.
NO : Go to Step 5.

Step 4. Check whether the diagnosis code is reset

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ABS-ECU or ASC-ECU.

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Step 5. Check whether the diagnosis code is reset

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

Diagnosis code No.U1110: Meter and A/C-ECU time-out (related to A/C)
Diagnosis code No.U1108: Meter and A/C-ECU time-out (related to meter)

⚠ CAUTION

- **If diagnosis code No.U1110 or No.U1108 are set in the ETACS-ECU, diagnose the CAN bus lines.**
- **Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.**

TROUBLE JUDGMENT

Diagnosis Code No.U1110

- The ETACS-ECU receives air conditioner system and meter-related signals from the combination meter (incorporating the meter and A/C-ECU). If air conditioner control system-related signal can not be received at all, diagnosis code No.U1110 will be set.

Diagnosis Code No.U1108

- The ETACS-ECU receives air conditioner system and meter-related signals from the combination meter (incorporating the meter and A/C-ECU). If meter-related signal can not be received at all, diagnosis code No.U1108 will be set.

COMMENT ON TROUBLE SYMPTOM

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the A/C-ECU and the ETACS-ECU, the power supply system to the combination meter, the combination meter itself, or the ETACS-ECU may be defective.

Past trouble

- If diagnosis code No.U1110 or No.U1108 are stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the combination meter and the ETACS-ECU, and the power supply system to the combination meter. For diagnosis procedures, refer to "How to treat past trouble" (refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Treat Past Trouble P.00-13).

NOTE: For a past trouble, you can not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-13 and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the diagnosis code, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54D – CAN Bus Line Diagnosis Flow P.54D-7).

PROBABLE CAUSES

- Malfunction of the combination meter (incorporating the meter and A/C-ECU)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13). On completion, go to Step 5.

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Step 2. M.U.T.-III other system diagnosis code

Check if a combination meter diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).
NO : Go to Step 3.

Step 3. M.U.T.-III other system diagnosis code

Check whether the engine-ECU <M/T> or engine-CVT-ECU <CVT> sets meter and air-conditioner-related time-out diagnosis code.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Go to Step 5.

Step 4. Check whether the diagnosis code is reset

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : . The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : . Replace the combination meter (incorporating the meter and A/C-ECU).

Step 5. Check whether the diagnosis code is reset

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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Diagnosis code No.U1128: Meter and A/C-ECU failure information (related to meter)

⚠ CAUTION

- **If diagnosis code No.U1128 is set in the ETACS-ECU, diagnose the CAN bus lines.**
- **Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.**

TROUBLE JUDGMENT

The ETACS-ECU receives combination meter-related signal from the combination meter via the CAN bus lines. If a fail-safe related data is contained in the signal from the combination meter, diagnosis code No.U1128 will be stored.

COMMENT ON TROUBLE SYMPTOM

Current trouble

- Connector(s) or wiring harness in the CAN bus lines, the engine-ECU <M/T> or engine-CVT-ECU <CVT>, the combination meter or the ETACS-ECU may be defective.

Past trouble

- If diagnosis code No.U1128 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the combination meter and the ETACS-ECU, and the power supply system to the combination meter. For diagnosis procedures, refer to "How to treat past trouble" (refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Treat Past Trouble P.00-13).

NOTE: For a past trouble, you can not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-13 and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the diagnosis code, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54D – CAN Bus Line Diagnosis Flow P.54D-7).

PROBABLE CAUSES

- Malfunction of the engine-ECU <M/T>
- Malfunction of the engine-CVT-ECU <CVT>
- Defective combination meter
- Malfunction of the ETACS-ECU

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13).

Step 2. M.U.T.-III other system diagnosis code

Check whether the engine-ECU <M/T> or engine-CVT-ECU <CVT> sets a diagnosis code.

Q: Is the diagnosis code set?

YES : Diagnose the engine or the CVT (Refer to GROUP 13A – Troubleshooting P.13A-20 <4A9>, GROUP 13B – Troubleshooting P.13B-18 <4G1>, or GROUP 23A – Troubleshooting P.23A-14 <CVT>).

NO : Go to Step 3.

Step 3. M.U.T.-III other system diagnosis code

Check whether the combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).

NO : Go to Step 4.

Step 4. Check whether the diagnosis code is reset

Check again if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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Diagnosis code No.B1706: Blown fuse is detected in fuse No.31 (hazard fuse).

⚠ CAUTION

- **If diagnosis code No.B1706 is set in the ETACS-ECU, diagnose the CAN bus lines.**
- **Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.**

TROUBLE JUDGMENT

When junction block fuse No.31 is blown, diagnosis diagnosis code No.B1706 is set. However, if the system returns to normal condition, diagnosis code No.B1706 will be erased automatically.

COMMENT ON TROUBLE SYMPTOM

Junction block fuse No.31 or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the Junction block fuse No. 31
- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

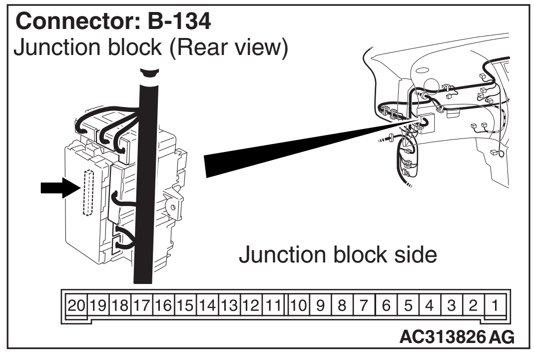
Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13).

Step 2. Check the Junction block fuse No.31

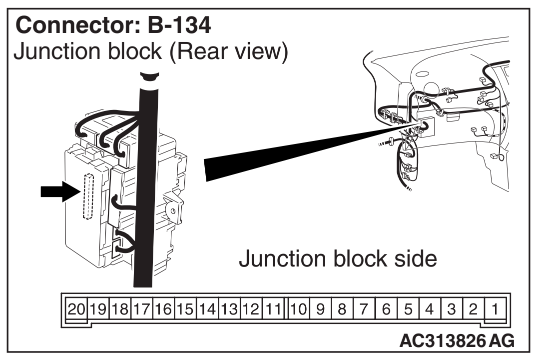
Q: Is the fuse in good condition?
YES : Go to Step 3.
NO : Replace the Junction block fuse No.31, and then go to Step 6.

Step 3. Connector check: B-134 ETACS-ECU connector

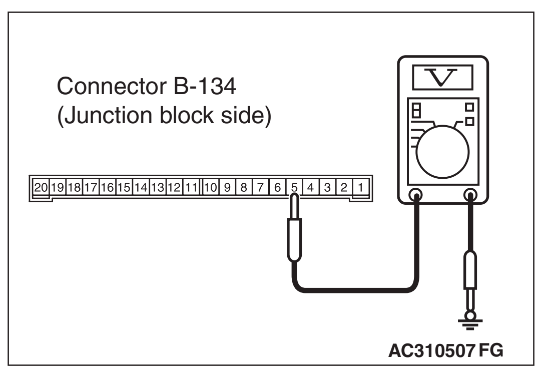


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Voltage measurement at the B-134 ETACS-ECU connector



(1) Disconnect the connector, and measure at the wiring harness side.



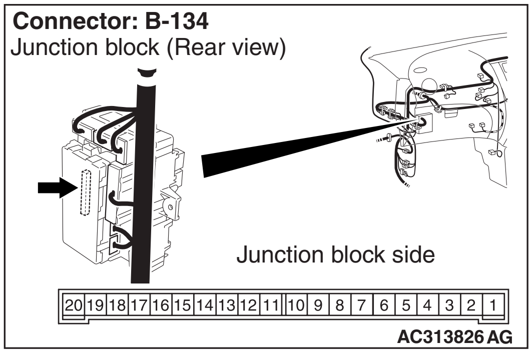
(2) Voltage between B-134 ETACS-ECU connector terminal No. 5 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 5.

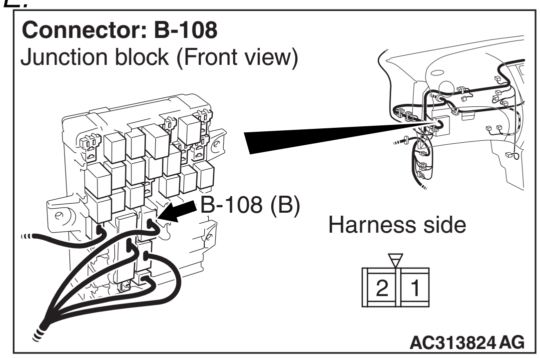
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Step 5. Check the wiring harness between B-134ETACS-ECU connector terminal No. 1 to fusible link (1).



Check the power supply line for open circuit.

NOTE:



Prior to the wiring harness inspection, check junction block connector B-108 and repair if necessary.

Q: Is the check result normal?

YES : . The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : . Repair the wiring harness.

Step 6. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) Check if the diagnosis code is set.

Q: Is the check result satisfactory?

YES : If a trouble is solved, it is determined that there is an intermittent malfunction such as poor engaged connector(s) or open circuit (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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Group TOC

Diagnosis code No. B1707: Open circuit is detected in the flasher circuit.

⚠ CAUTION

- **If diagnosis code No.B1707 are set in the ETACS, diagnose the CAN main bus line.**
- **Whenever the ECU is replaced, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT

When there is an open circuit between the turn-signal lamp relay (incorporated in the ETACS-ECU) and body earth, diagnosis code No. B1707 is set. However, if the system returns to normal condition, diagnosis code No.B1707 will be erased automatically.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors between the turn-signal lamp relay and body earth may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Defective turn-signal lamp bulb
- Defective head lamp assembly
- Defective side turn-signal lamp
- Defective rear combination lamp
- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to step 2.
NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13). Repair the CAN bus line.

Step 2. Check the power supply circuit.

When the ignition switch is turned to the "LOCK" (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 3. M.U.T.-III actuator test

Perform the actuator test for the ETACS-ECU, and check that the turn-signal lamps work. Refer to P.54B-15.

- Item 09: Turn-signal lamp (LH) switch
- Item 10: Turn-signal lamp (RH) switch
- Item 17: Turn-signal lamp (LH)
- Item 18: Turn-signal lamp (RH)

OK: The turn-signal lamps blink or illuminate.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Refer to Inspection Procedure L-3 "Any of the turn-signal lamps does not illuminate P.54B-171."

Step 4. Check that the turn-signal lamps operate.

Check that the turn-signal lamps illuminate normally.

Q: Is the check result normal?

YES : Go to step 5.
NO : Refer to Inspection Procedure L-3 "Any of the turn-signal lamps does not illuminate P.54B-171."

Step 5. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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Diagnosis code No. B1708: An open circuit is detected in the variable intermittent wiper control switch.

⚠ CAUTION
- **If diagnosis code No.B1708 is set in the ETACS, diagnose the CAN main bus line.**
- **Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.**

TROUBLE JUDGMENT

When the output voltage of the variable intermittent wiper control switch is 4V or more for 1 second or more, ETACS-ECU judges that there is an open circuit in the variable intermittent wiper control switch, and sets diagnosis code No. B1708.

COMMENTS ON TROUBLE SYMPTOM

Current trouble

- The SWS communication line, the column switch or the ETACS-ECU may be defective.

Past trouble

- Carry out diagnosis with particular emphasis on connector(s) or wiring harness between the ETACS-ECU and the column switch. For diagnosis procedures, refer to "How to treat past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-13).

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to step 3.
NO : Repair the CAN bus line (Refer to GROUP 54D, Troubleshooting P.54D-13). On completion, go to Step 2.

Step 2. Retest the system.

Check that the windshield intermittent wiper interval can be adjusted by operating the windshield intermittent wiper volume control.

OK: The intermittent wiper interval is changed as the intermittent wiper volume is rotated.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Refer to Inspection Procedure N-6 "The windshield wiper volume signal is not received P.54B-208."

Step 3. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

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Diagnosis code No. B1709: ETACS-ECU Internal Error (EEPROM Problem)
Diagnosis code No. B1710: ETACS-ECU Internal Error (ROM Problem)
Diagnosis code No. B1711: ETACS-ECU Internal Error (RAM Problem)

⚠ CAUTION
- **If diagnosis code No.B1709, B1710 or B1711 are set in the ETACS-ECU, diagnose the CAN bus lines.**
- **Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.**

TROUBLE JUDGMENT

If there is any trouble in the ETACS-ECU, diagnosis code No. B1709, B1710, B1711 will be set.

COMMENT ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13).

Step 2. Check the power supply circuit.

When the ignition switch is turned to the "LOCK" (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 3. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.
(2) Turn the ignition switch to the "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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TROUBLE SYMPTOM CHART

M1549000802282

Symptom	Inspection procedure number	Reference page
Communication with the M.U.T.-III is not possible.	A-1	P.54B-40
When the ignition switch is at the LOCK (OFF) position, the functions do not work normally.	A-2	P.54B-43
Check the battery power supply circuit to the ETACS-ECU.		

<FUNCTION SYSTEM>

Symptom		Inspection procedure number	Reference page
Alarm Function	Lamp reminder buzzer function does not work normally.	B-1	P.54B-46
	Door-ajar warning buzzer function does not work.	B-2	P.54B-48
	Turn-signal lamp operation sound function does not work normally.	B-3	P.54B-50
Central door locking	Central door locking system does not work.	C-1	P.54B-52
	A door can not be locked or unlocked by the central door locking system.	C-2	P.54B-54
	Selector "P" position-linked door unlock function does not operate normally. <CVT>	C-3	P.54B-61
Power window	Power windows do not work at all.	D-1	P.54B-62
	Driver's power window does not work by means of the power window main switch.	D-2	P.54B-68
	Relevant power window(s) do not work by means of the front and rear power window sub switches.	D-3	P.54B-71
	Passenger's and/or rear power window(s) do not work by means of the power window main switch.	D-4	P.54B-80
	The window glass lowers automatically while it is rising.	D-5	P.54B-83
	The power window timer function does not work normally.	D-6	P.54B-82

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Symptom		Inspection procedure number	Reference page
Keyless entry system	Keyless entry system does not work.	E-1	P.54B-84
	Keyless entry hazard lamp answerback function or the room lamp answerback function does not work normally.	E-2	P.54B-86
	Encrypted code cannot be registered.	E-3	P.54B-87
	Multi-mode keyless entry system function does not work at all.	E-4	P.54B-89
	The timer lock function does not work after the doors have been unlocked by the keyless entry system.	E-5	P.54B-90
Windshield wiper and washer	The windshield wipers do not work at all.	F-1	P.54B-91
	The windshield wipers do not work when the wiper switch is at "INT", "Washer" or "Mist" position. However, the wipers work at low speed when the switch is at "Lo" and "Hi" position.	F-2	P.54B-95
	The windshield wipers do not stop at the specified park position.	F-3	P.54B-97
	The windshield wipers do not work normally.	F-4	P.54B-100
	The intermittent wiper interval cannot be adjusted by operating the windshield intermittent wiper volume control.	F-5	P.54B-104
	The intermittent wiper interval is not changed according to the vehicle speed.	F-6	P.54B-105
	The windshield washer does not work.	F-7	P.54B-107
Rear wiper and washer	Rear wiper does no not work at all.	G-1	P.54B-110
	The rear wiper does not stop at the specified park position.	G-2	P.54B-114
	When the shift lever is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode. <CVT>	G-3	P.54B-118
	The rear washer does not work.	G-4	P.54B-119
Electric retractable remote controlled door mirror	Electric retractable remote controlled door mirror does not work at all.	H-1	P.54B-121
	Electric retractable remote controlled door mirror timer function does not at all.	H-2	P.54B-124
	Vehicle speed-dependent unfolding function does not work normally.	H-3	P.54B-125
	Keyless entry system-linked fold/unfold function does not work normally.	H-4	P.54B-125
	Left or right side electric retractable remote controlled door mirror does not work at all.	H-5	P.54B-126

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Symptom		Inspection procedure number	Reference page
Ignition key cylinder illumination lamp	The ignition key cylinder illumination lamp does not illuminate/extinguish normally.	I-1	P.54B-131
Headlamp and tail lamp	The tail lamps do not illuminate normally.	J-1	P.54B-135
	The low-beam headlamps do not illuminate normally.	J-2	P.54B-138
	The high-beam headlamps do not illuminate normally.	J-3	P.54B-141
	The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.	J-4	P.54B-143
	The headlamp(s) do not illuminate.	J-5	P.54B-144
	The high-beam indicator lamps does not illuminate.	J-6	P.54B-149
	Any of tail lamps, position lamps or licence plate lamp does not illuminate	J-7	P.54B-150
Fog lamp	The fog lamps do not illuminate normally	K-1	P.54B-156
	Any of the fog lamps does not illuminate normally.	K-2	P.54B-160
	The fog lamps indicator does not illuminate normally	K-3	P.54B-164
Flasher timer	The turn-signal lamps do not illuminate	L-1	P.54B-166
	The hazard warning lamps do not illuminate.	L-2	P.54B-169
	Any of the turn-signal lamps does not illuminate.	L-3	P.54B-171
	The turn-signal indicator lamp does not illuminate.	L-4	P.54B-180
	The turn-signal lamps do not illuminate when the ignition switch is at the ACC position.	L-5	P.54B-181
Interior lamp	The interior lamps (room ramp, luggage compartment lamp) does not illuminate or extinguish normally.	M-1	P.54B-183
	The room lamp does not illuminate normally.	M-2	P.54B-188
	The luggage compartment lamp does not illuminate normally.	M-3	P.54B-193
	The door-ajar warning lamp does not illuminate/extinguish normally	M-4	P.54B-198

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CHECK TROUBLE BY USING THE INPUT SIGNAL CHECK

M1549024200590

<Data list, function diagnosis or pulse check>

If a problem is found in the Service Data or Pulse Check inspection, observe the table below.

Symptom		Inspection procedure number	Reference page
The ignition switch (ACC) signal is not received.		N-1	P.54B-200
The ignition switch (IG1) signal is not received.		N-2	P.54B-202
The driver's door switch signal is not received.		N-3	P.54B-204
Column switch (lighting and turn-signal lamp switch)	The tail lamp switch signal is not received.	N-4	P.54B-206
	The headlamp switch signal is not received.		
	The dimmer switch signal is not received.		
	The passing switch signal is not received.		
	The turn-signal lamp switch (LH) signal is not received.		
	The turn-signal lamp switch (RH) signal is not received.		
Column switch (windshield wiper/washer and rear wiper washer switch)	The windshield mist wiper switch signal is not received.	N-5	P.54B-207
	The windshield intermittent wiper switch signal is not received.		
	The windshield low-speed wiper switch signal is not received.		
	The windshield high-speed wiper switch signal is not received.		
	The windshield washer switch signal is not received.		
	The rear wiper switch signal is not received.		
	The rear washer switch signal is not received.		
	The windshield intermittent wiper volume signal is not received.	N-6	P.54B-208
The key reminder switch signal is not received.		N-7	P.54B-210
Signal is not received from the remote controlled mirror switch (folding/unfolding switch).		N-8	P.54B-213
The hazard warning lamp switch signal is not received.		N-9	P.54B-216
All the door switch signals are not received.		N-10	P.54B-219
The driver's door lock actuator switch signal is not received.		N-11	P.54B-223
Each switch signal of the keyless entry transmitter is not received.		N-12	P.54B-226
The fog lamp switch signal is not received.		N-13	P.54B-228
The passenger's door switch signal is not received.		N-14	P.54B-231

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OPERATION AND FUNCTION QUICK-REFERENCE TABLE FOR INPUT SIGNAL INSPECTION PROCEDURES

M1549020300506

If troubles have occurred in the functions which use the SWS simultaneously, observe the table below to check input signals.

(This table shows only the input signals which will cause troubles in at least two functions simultaneously).

Function	N-1	N-2	N-3	N-4	N-5	N-7	N-10	N-11	N-12
Lamp reminder buzzer function	–	×	×	×	–	–	–	–	–
Door-ajar buzzer function	–	–	–	–	–	–	×	–	–
Turn-signal lamp operation sound function	–	–	×	–	–	–	–	–	–
Central door lock control	–	–	–	–	–	–	–	×	–
Keyless entry system	–	–	×	–	–	×	×	–	×
Keyless entry hazard answerback function	–	×	–	–	–	–	–	–	×
Multi-mode keyless entry	–	–	–	–	–	–	–	–	×
Power window timer function	–	×	×	–	–	–	–	–	–
Control of windshield wiper washer	×	–	–	–	×	–	–	–	–
Rear wiper washer control	×	–	–	–	×	–	–	–	–
Control of electric folding remote-controlled mirror	–	×	–	–	–	–	–	–	–
Ignition key cylinder illumination lamp function	–	×	×	–	–	×	–	–	
Headlamp control	–	–	–	×	–	–	–	–	–
Tail lamp control	–	–	–	×	–	–	–	–	–
Fog lamp control	–	–	–	×	–	–	–	–	–
Turn-signal lamp control	–	×	–	×	–	–	–	–	–
Room lamp control	–	×	–	–	–	×	×	×	–
Door-ajar indicator lamp	–	–	×	–	–	–	×	–	–

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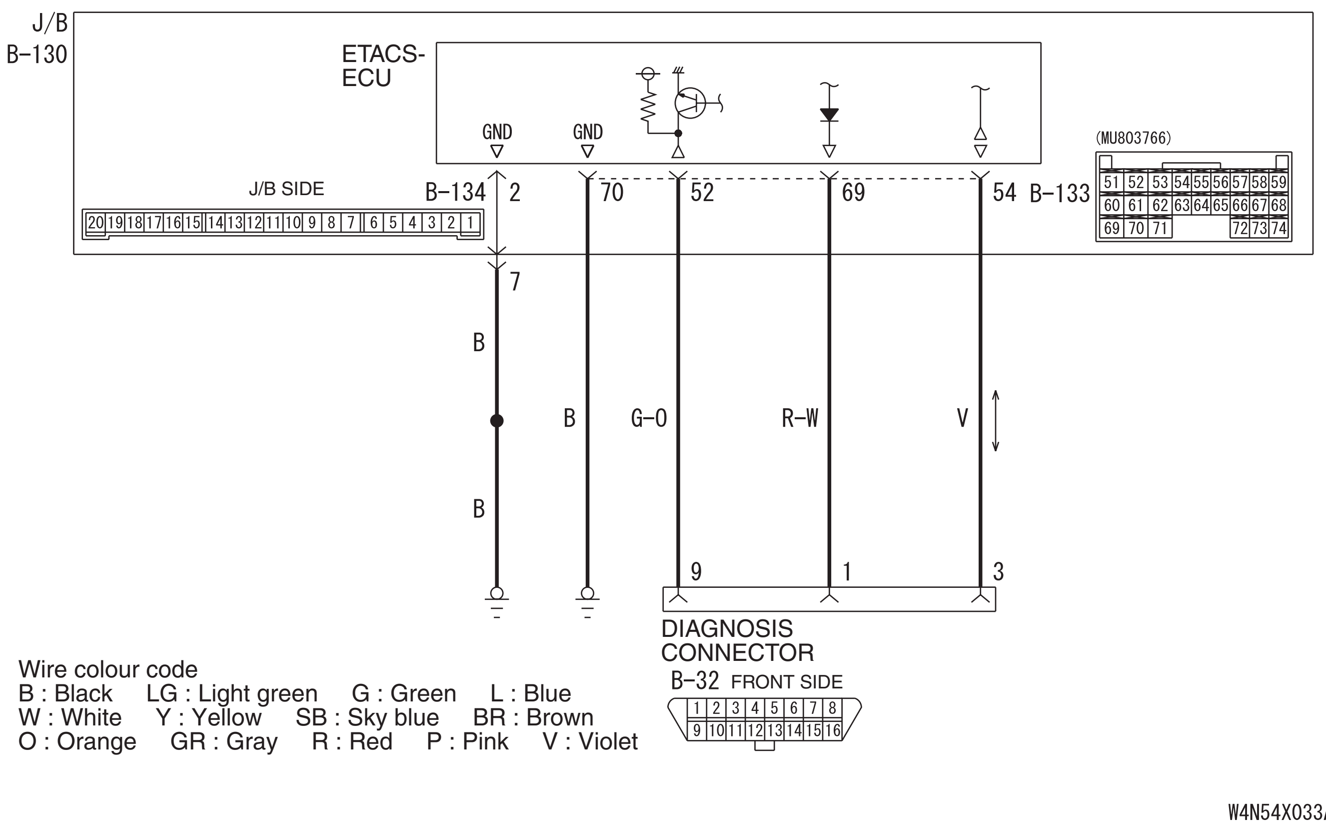
SYMPTOM PROCEDURES

Inspection Procedure A-1: Communication with the M.U.T.-III is not possible.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

MUT-III Communication and ETACS-ECS Circuit



COMMENTS ON TROUBLE SYMPTOM

It is suspected that the power supply circuit to the ETACS-ECU is defective, or the wiring harness between the diagnosis connector and the ETACS-ECU or their connector(s) is damaged.

NOTE: If the wiring harness between the ETACS-ECU and body earth is defective, also check B-134 ETACS-ECU connector terminal No.2, and repair if necessary.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check that the M.U.T.-III communicates with the other systems.

Use the M.U.T.-III to confirm that it communicates with the engine-ECU.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Diagnose the system, which cannot communicate with the M.U.T.-III.

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Step 2. Check that the M.U.T.-III can communicate with the system.

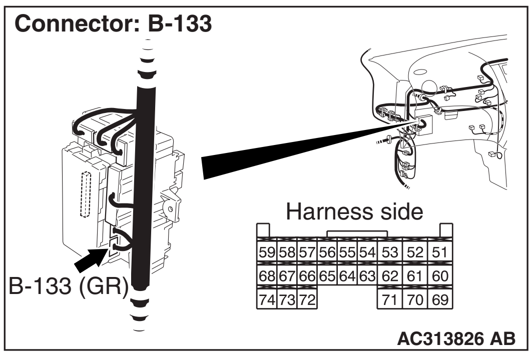
When the ignition switch is turned ON, check if the M.U.T.-III can communicate with the system.

Q: Is the check result normal?

YES : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

NO : Go to Step 3.

Step 3. Connector check: B-133 ETACS-ECU connector

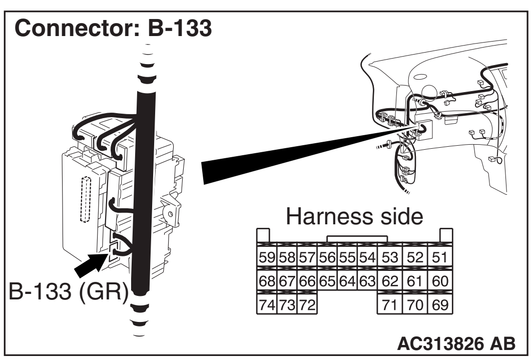


Q: Is the check result normal?

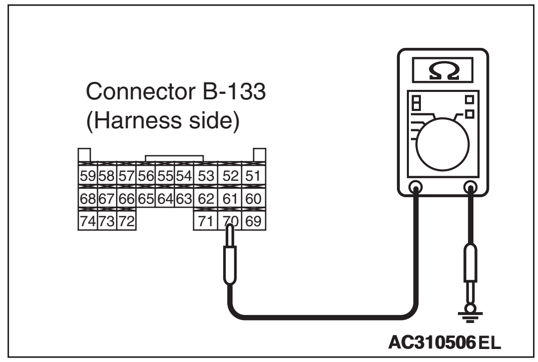
YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Resistance measurement at the B-133 ETACS-ECU connector.



(1) Disconnect the connector, and measure at the junction block side.



(2) Resistance between B-133 ETACS-ECU connector terminal No.70 and body earth

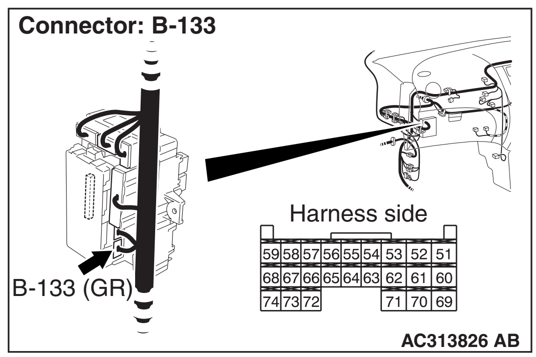
OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

Step 5. Check the wiring harness between B-133 ETACS-ECU connector terminal No.70 and body earth.



- Check the earth wires for open circuit.

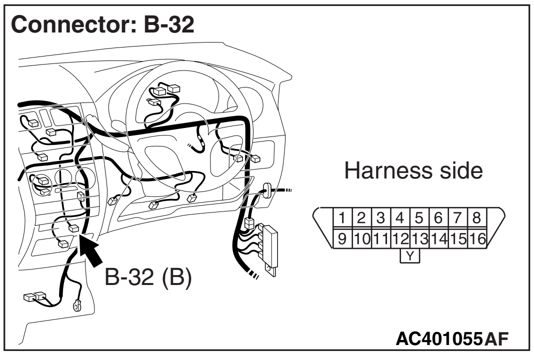
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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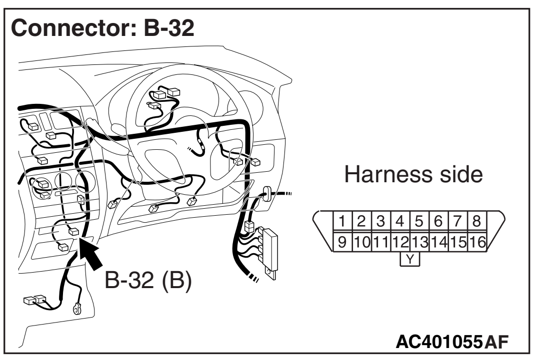
Step 6. Connector check: B-32 diagnosis connector

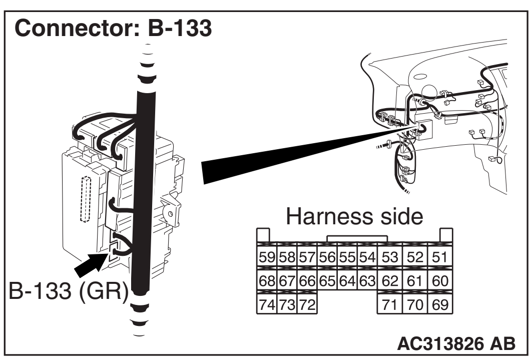


Q: Is the check result normal?

YES : Go to Step 7.
NO : Repair the defective connector.

Step 7. Check the wiring harness from B-133 ETACS-ECU connector terminal Nos. 52 and 69 to B-32 diagnosis connector terminal Nos. 9 and 1.



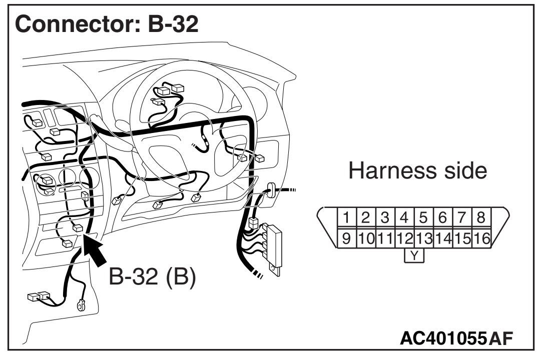


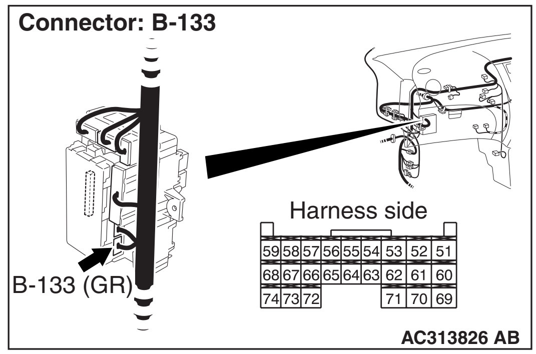
- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 8.
NO : Repair the wiring harness.

Step 8. Check the wiring harness from B-133 ETACS-ECU connector terminal No.54 to B-32 diagnosis connector terminal No.3.





- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 9.
NO : Repair the wiring harness.

Step 9. Retest the system.

Check whether the communication with the M.U.T.-III is possible.

Q: Is the check result normal?

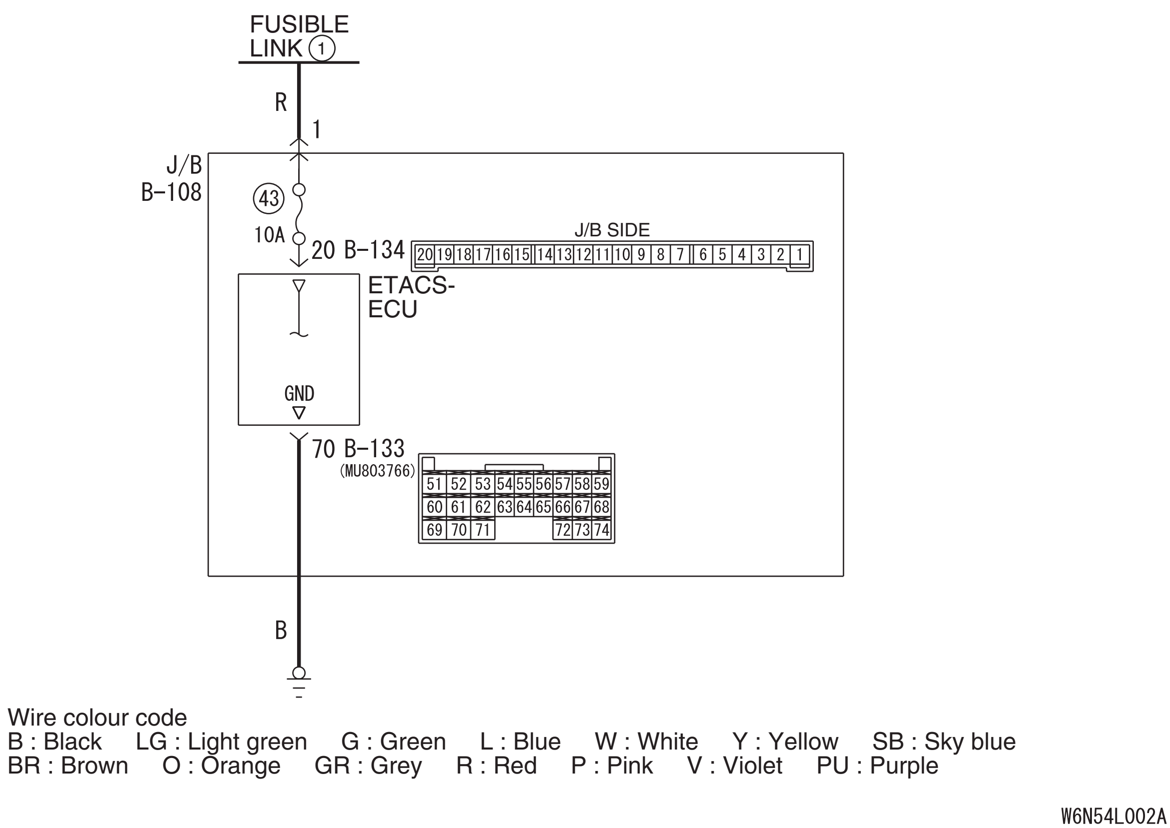
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

Inspection Procedure A-2: When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the power supply circuit and the earth circuit are normal.

ETACS-ECS Power Supply Circuit



COMMENTS ON TROUBLE SYMPTOM

If this circuit is defective and the ignition switch is at the LOCK (OFF) position, the ETACS-ECU does not work. In this case, the functions below will be suspended.

- Lamp reminder function
- Keyless entry system
- Ignition key cylinder illumination lamp

However, when the ignition switch is at the ON position, the functions below will work.

- Reading diagnosis code and checking input signal by M.U.T.-III.
- Central door locking
- Headlamp and tail lamp
- Hazard warning lamp
- Interior lamps

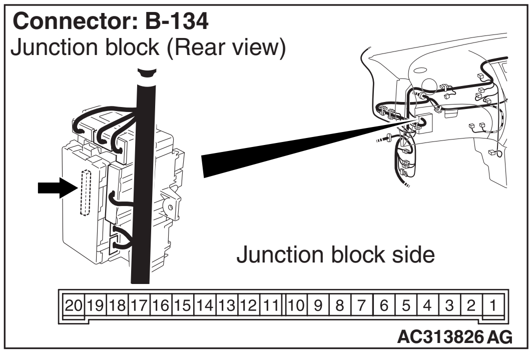
POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSTIC PROCEDURE

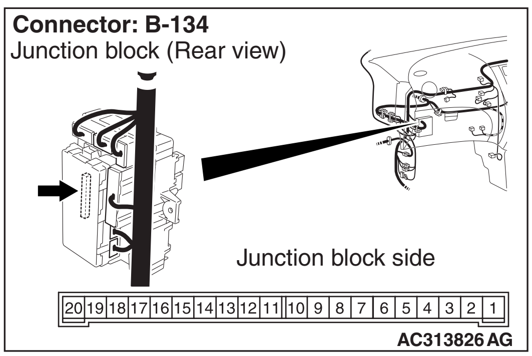
Step 1. Connector check: B-134 ETACS-ECU connector



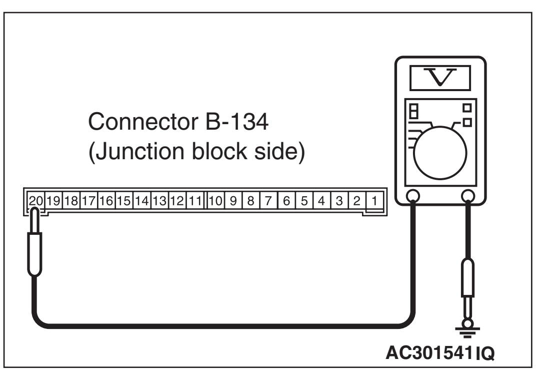
Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Voltage measurement at the B-134 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.



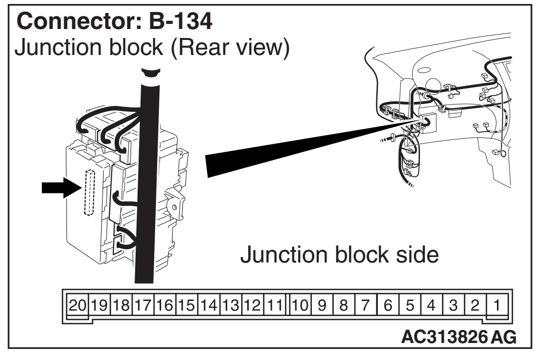
(2) Voltage between B-134 ETACS-ECU connector terminal No.20 and body earth.

OK: System voltage

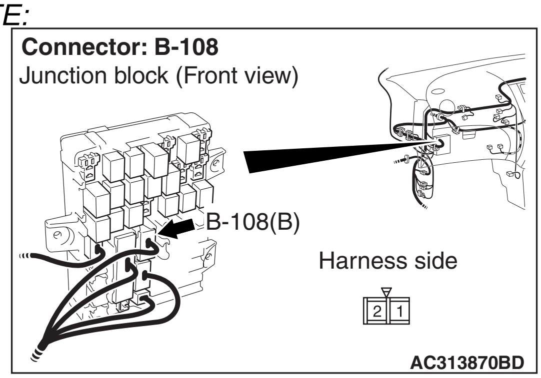
Q: Is the check result normal?

YES : . Go to Step 4.
NO : . Go to Step 3.

Step 3. Check the wiring harness between B-134 ETACS-ECU connector terminal No.20 and fusible link (1).



NOTE:



Prior to the wiring harness inspection, check junction block connector B-108, and repair if necessary.

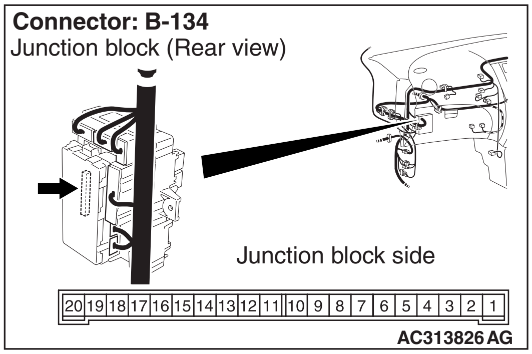
- Check the power supply line for open circuit.

Q: Is the check result normal?

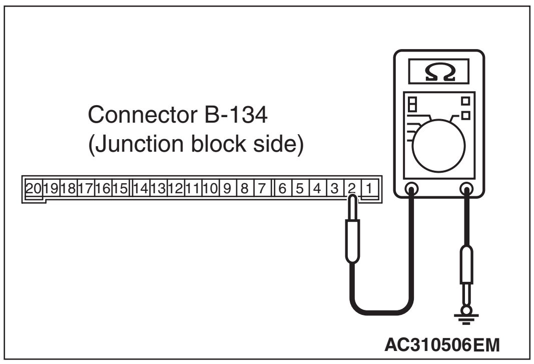
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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Step 4. Resistance measurement at the B-134 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.



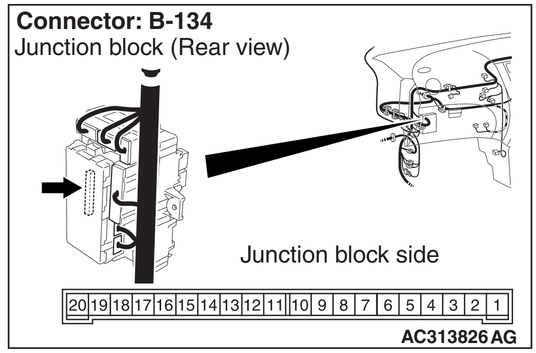
(2) Continuity between B-134 ETACS-ECU connector terminal No.2 and body earth.

OK: Continuity exists (2 Ω or less)

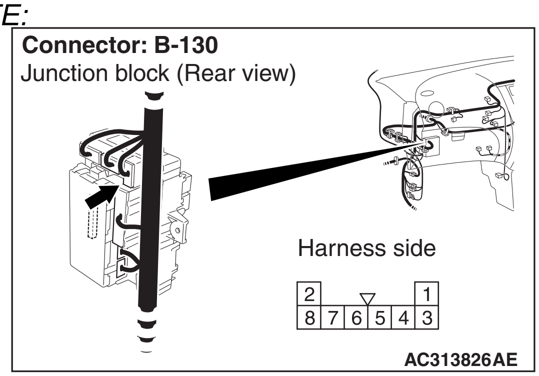
Q: Is the check result normal?

YES : Go to Step 6.
NO : Go to Step 5.

Step 5. Check the wiring harness between B-134 ETACS-ECU connector terminal No.2 and body earth.



NOTE:



Prior to the wiring harness inspection, check junction block connector B-130, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

Step 6. Retest the system.

Check that the battery power supply circuit to the ETACS-ECU is normal.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

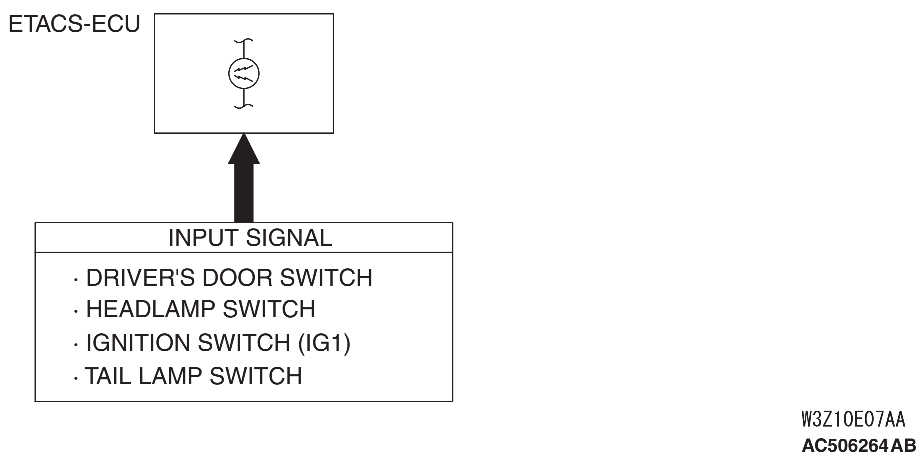
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BUZZER

INSPECTION PROCEDURE B-1: Lamp reminder buzzer function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Lamp Reminder Buzzer Function



COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates this function in accordance with the input signals below.

- Ignition switch (IG1)
- Driver’s door switch
- Tail lamp switch

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the driver’s door switch
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check the power supply circuit.
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

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Step 2. Pulse check

Check the input signals below, which are related to the lamp reminder buzzer function.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Driver's door switch	When the driver's door is opened
Tail lamp switch	When the lighting switch is turned to the TAIL position
Headlamp switch	When the lighting switch is turned to the HEAD position

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check results normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

The driver's door switch signal is not received. : Refer to Inspection Procedure N-3 "The driver’s door switch signal is not received P.54B-204."

The tail lamp switch signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

The headlamp switch signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

Step 3. Retest the system.

The lamp reminder buzzer function should work normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

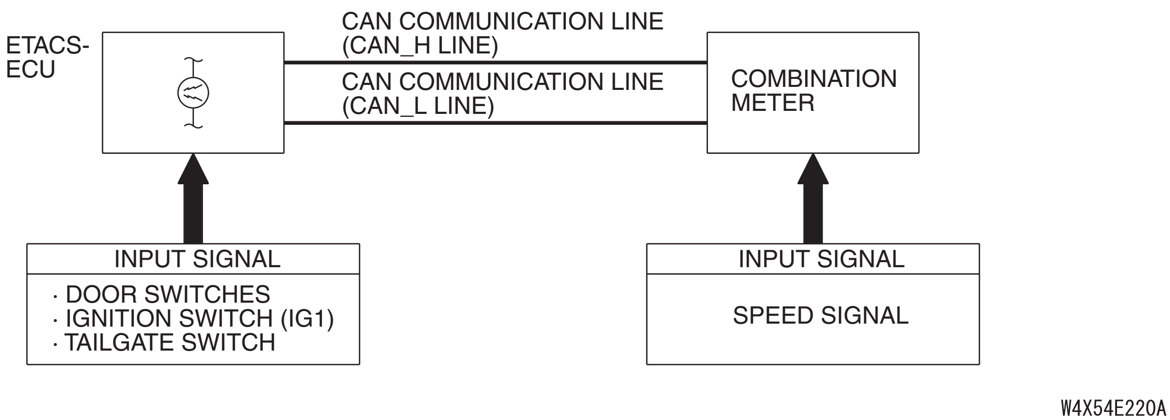
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INSPECTION PROCEDURE B-2: Door-ajar warning buzzer function does not work.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

NOTE: If the CAN bus diagnostics is carried out, the door-ajar warning function is triggered.

Door-Ajar Warning Buzzer Function



COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates this function in accordance with the input signals below.

- Ignition switch (IG1)
- All of the door switches
- Vehicle speed signal

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective. Note that this function can be disabled/enabled by the customise function (default setting; enabled). In order to change the setting, the SWS monitor is required.

POSSIBLE CAUSES

- Malfunction of the CAN bus line
- Malfunction of the door switches
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

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Step 2. Pulse check

Check the input signals below, which are related to the door-ajar warning buzzer function.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
All of the door switches	A door is opened when all the doors are closed

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

All the door switch signals are not received. : Refer to Inspection Procedure N-10 "All the door switch signals are not received P.54B-219."

Step 3. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the CAN bus line (Refer to GROUP 54D, Diagnosis P.54D-13).

Step 4. M.U.T.-III other system diagnosis code

Check whether the combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).

NO : Go to Step 5.

Step 5. Customize function by using the SWS monitor

Use the SWS monitor customise function to confirm that "DOOR WARN BUZ" is set to "W.FUNCTION".

⚠ CAUTION

The SWS monitor must be used in order to confirm and change that setting. Use the SWS monitor to confirm and/or change the customised function.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Use the SWS monitor customise function to set "DOOR WARN BUZ" to "W.FUNCTION" (Refer to GROUP 54C – Customize function P.54C-240).

Step 6. Retest the system.

Check that the door-ajar warning buzzer function works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

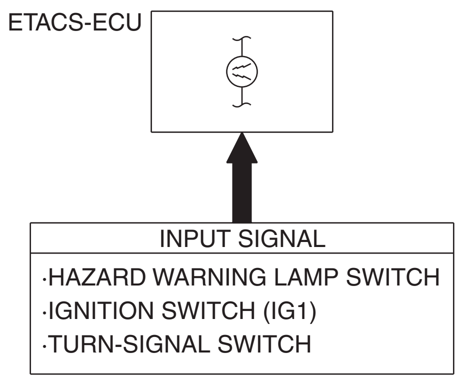
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INSPECTION PROCEDURE B-3: Turn-signal lamp operation sound function does not work normally.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Turn-Signal Lamp Operation Sound Function



W4X54E225A

COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates this function in accordance with the input signals below.

- Turn-signal lamp switch
- Hazard warning lamp switch

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective. Note that this function can be disabled/enabled by the customise function (default setting; disabled). In order to change the setting, the SWS monitor is required.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check that the turn-signal lamps operate.

When the turn-signal lamp switch or the hazard warning lamp switch is operated, check that the turn-signal lamps flash.

Q: Is the check result normal?

YES : Go to Step 2.

NO : First, repair the turn-signal lamp(s) (Refer to Trouble Symptom Chart P.54B-35).

Step 2. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

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Step 3. Pulse check

Check the input signals below, which are related to the turn-signal lamp operation sound function.

System switch	Check conditions
Ignition switch (IG1)	When turned from ACC to ON
Turn-signal lamp switch (RH)	When the turn-signal lamp switch (RH) is turned from off to on
Turn-signal lamp switch (LH)	When the turn-signal lamp switch (LH) is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally. : Go to Step 4.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received" P.54B-202.

The turn-signal lamp switch (RH) signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received" P.54B-206.

The turn-signal lamp switch (LH) signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received" P.54B-206.

Step 4. Customize function by using the SWS monitor

Use the SWS monitor customise function to confirm that "T/SIG.BUZZER" is set to "W.FUNCTION".

⚠ **CAUTION**

The SWS monitor must be used in order to confirm and change that setting. Use the SWS monitor to confirm and/or change the customised function.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Use the SWS monitor customise function to set "T/SIG.BUZZER" to "W.FUNCTION" (Refer to GROUP 54C – Customize function P.54C-240).

Step 5. Retest the system.

Check that the turn-signal lamp operation sound function works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

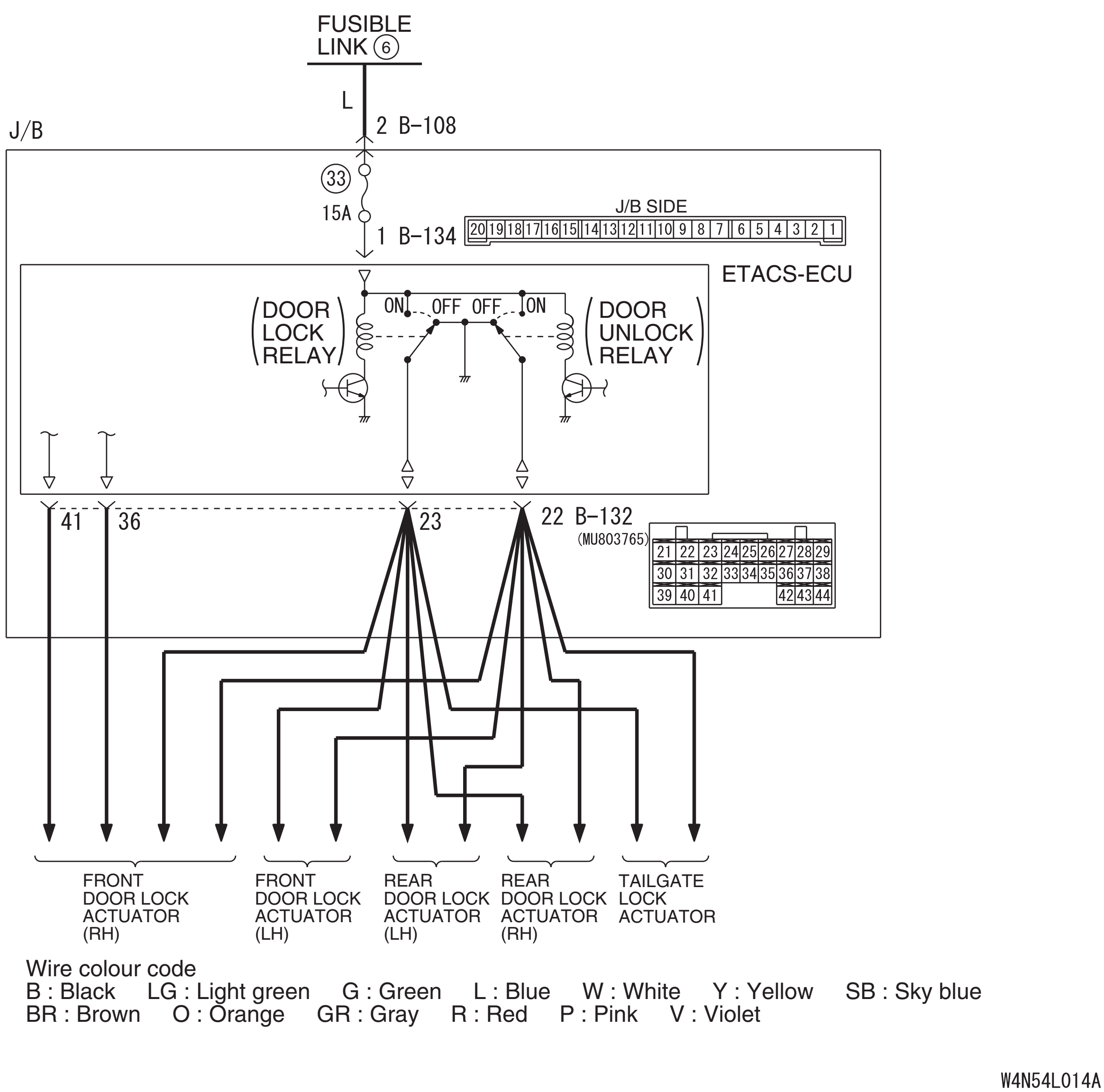
CENTRAL DOOR LOCKING SYSTEM

INSPECTION PROCEDURE C-1: Central door locking system does not work.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Central Door Lock Power Supply Circuit



COMMENT ON TROUBLE SYMPTOM

If the central door locking system does not work at all, the front door lock actuator (RH) or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the front door lock actuator (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 2. Pulse check

Check the ETACS-ECU input signal related to the central door locking system.

System switch	Check condition
Driver's inside lock knob	LOCK→ UNLOCK

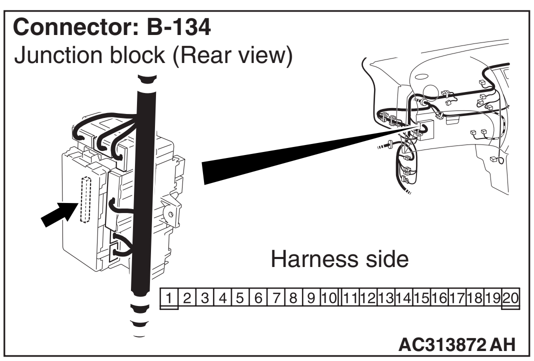
OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure N-11 "The driver's door lock actuator switch signal is not received P.54B-223."

Step 3. Connector check: B-134 ETACS-ECU connector

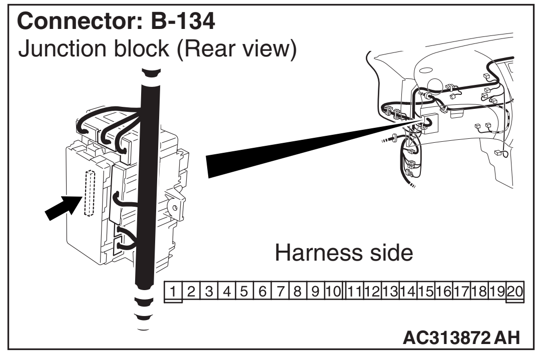


Q: Is the check result normal?

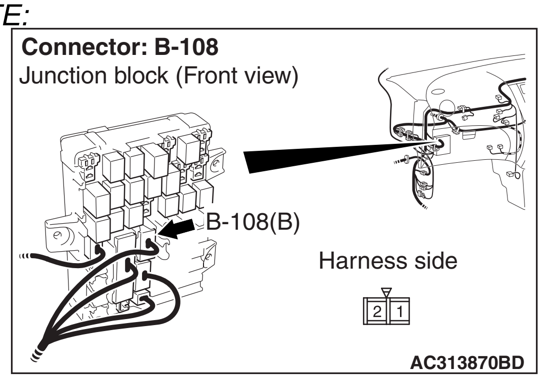
YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Check the wiring harness between B-134 ETACS-ECU connector terminal No.1 to fusible link (6).



NOTE:



Prior to the wiring harness inspection, check junction block connector B-108, and repair if necessary.

- Check the power supply line for open or short circuit.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the wiring harness.

Step 5. Retest the system.

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

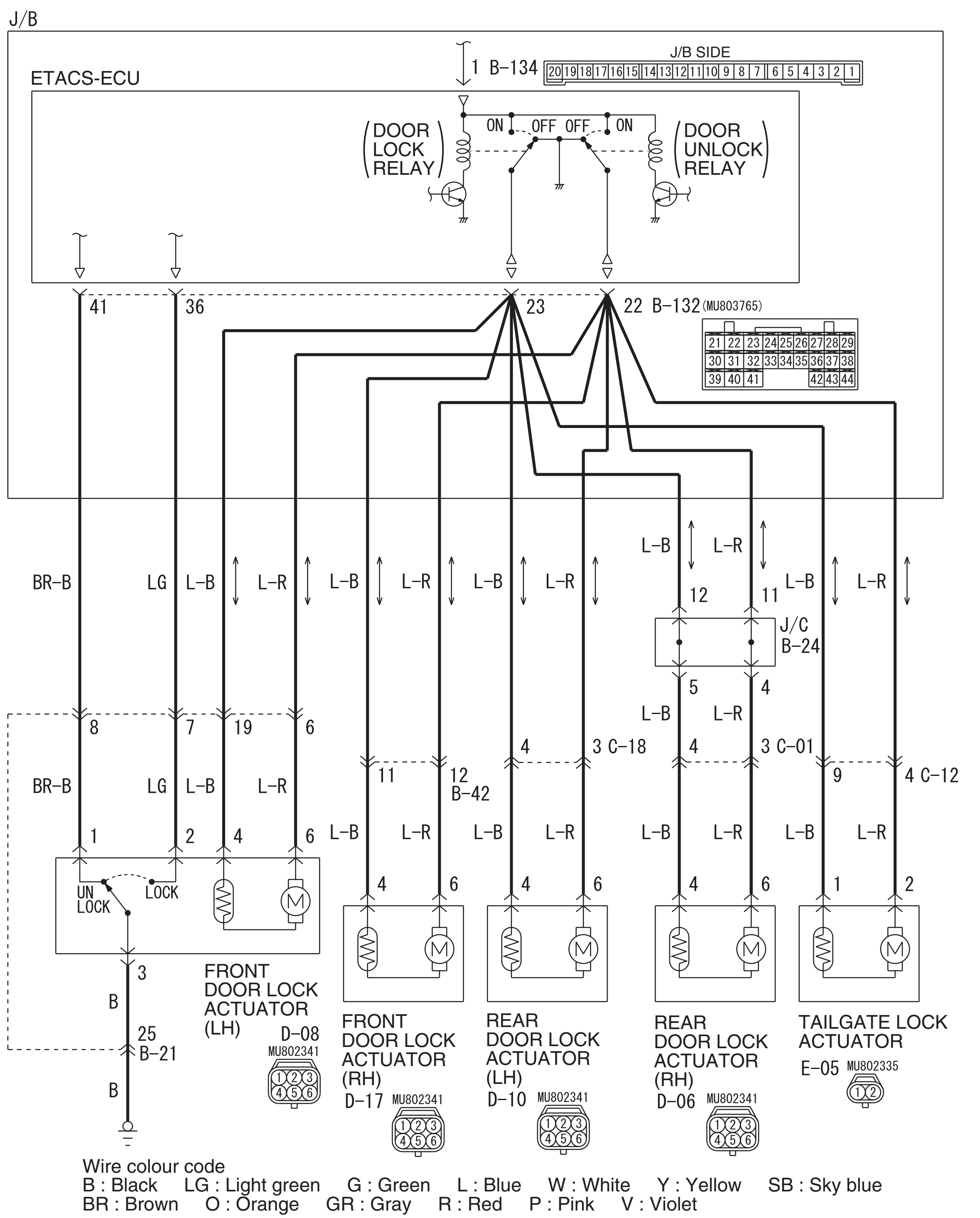
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE C-2: A door can not be locked or unlocked by the central door locking system.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Central Door Lock Circuit



W4N54L015A

COMMENT ON TROUBLE SYMPTOM

If a door can not be locked or unlocked by the central door locking system, the door lock actuator may be defective.

POSSIBLE CAUSES

- Malfunction of the door lock actuator
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Confirm which door lock actuator is defective.

Q: Which door fails to lock correctly?

Driver's door : Go to Step 2.
Front passenger's door : Go to Step 5.
Rear right door : Go to Step 8.
Rear left door : Go to Step 11.
Tailgate : Go to Step 14.

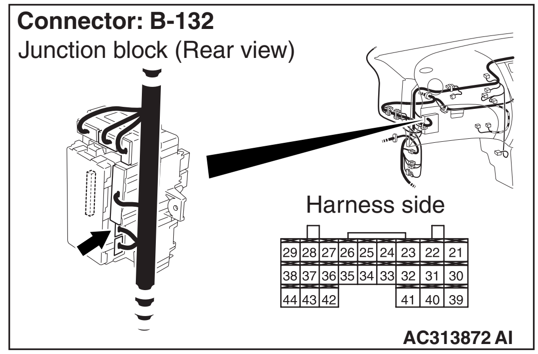
Step 2. Check the front door lock actuator (RH)

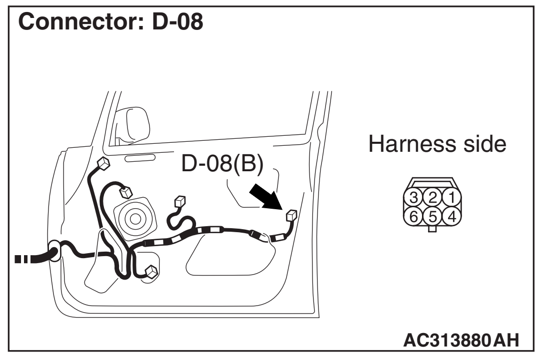
Check that the front door lock actuator (RH) works normally. Refer to GROUP 42 – Door P.42-46.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the front door lock actuator (RH).

Step 3. Connector check: B-132 ETACS-ECU connector, D-08 front door lock actuator (RH) connector



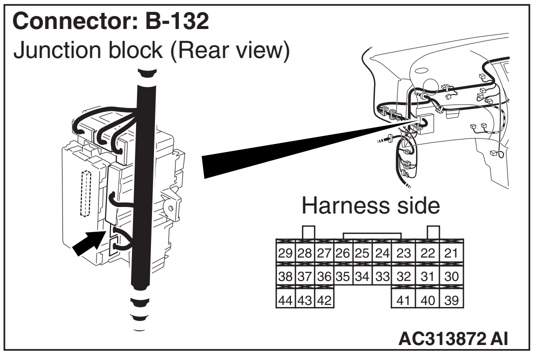


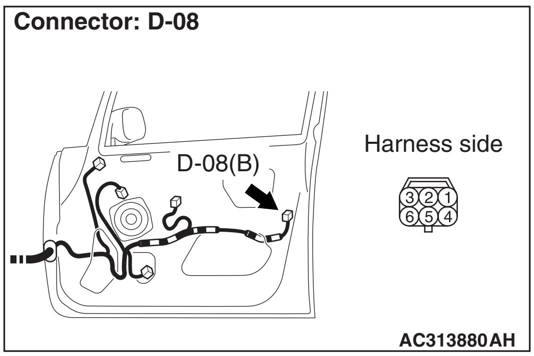
Q: Is the check result normal?

YES : Go to Step 4.
NO : Repair the defective connector.

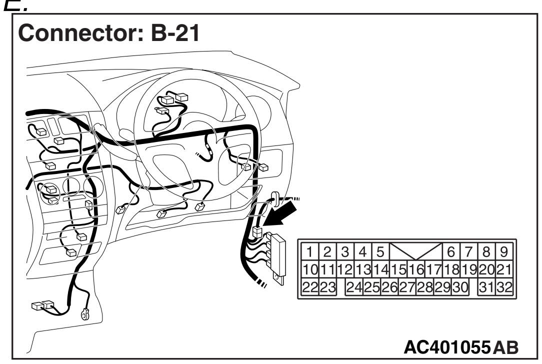
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Step 4. Check the wiring harness from B-132 ETACS-ECU connector terminal Nos.22 and 23 to D-08 front door lock actuator (RH) connector terminal Nos. 6 and 4.





NOTE:



Prior to the wiring harness inspection, check intermediate connector B-21, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 5. Check the front door lock actuator (LH)

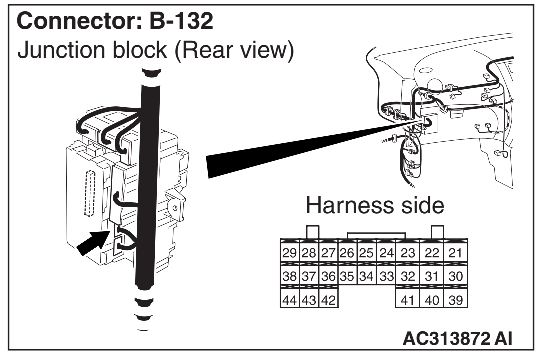
Check that the front door lock actuator (LH) works normally. Refer to GROUP 42 – Door P.42-46.

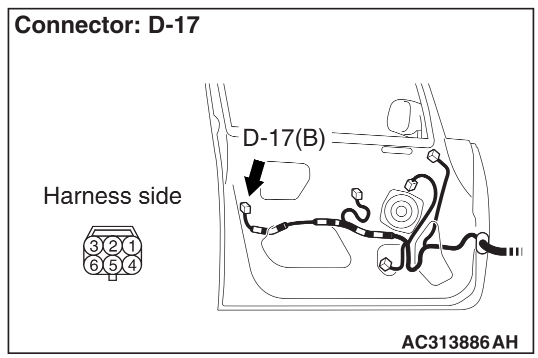
Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the front door lock actuator (LH).

Step 6. Connector check: B-132 ETACS-ECU connector, D-17 front door lock actuator (LH) connector





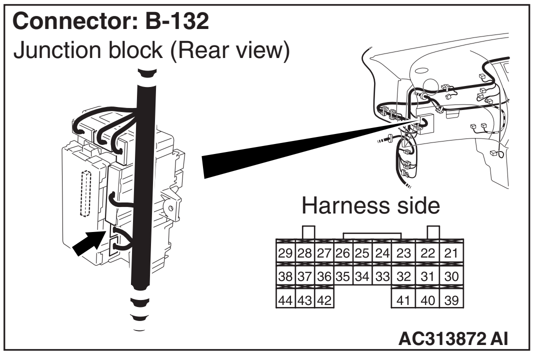
Q: Is the check result normal?

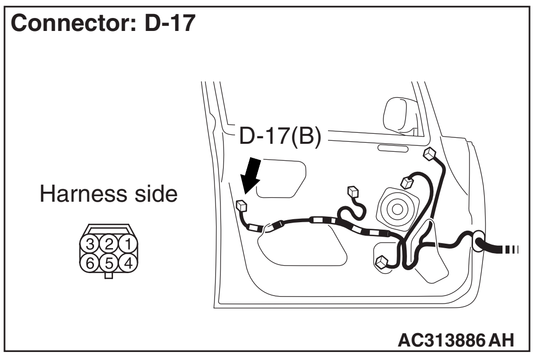
YES : Go to Step 7.

NO : Repair the defective connector.

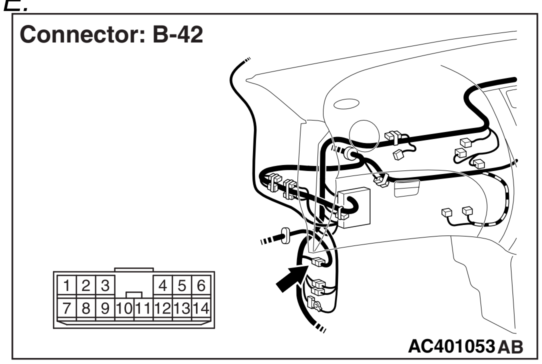
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Step 7. Check the wiring harness from B-132 ETACS-ECU connector terminal Nos.22 and 23 to D-17 front door lock actuator (LH) connector terminal Nos. 6 and 4.





NOTE:



Prior to the wiring harness inspection, check intermediate connector B-42, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 8. Check the rear door lock actuator (RH)

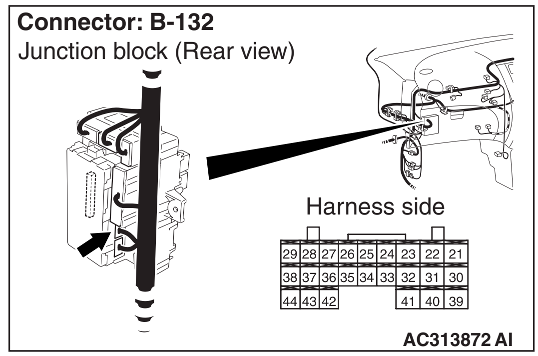
Check that the rear door lock actuator (RH) works normally. Refer to GROUP 42 – Door P.42-46.

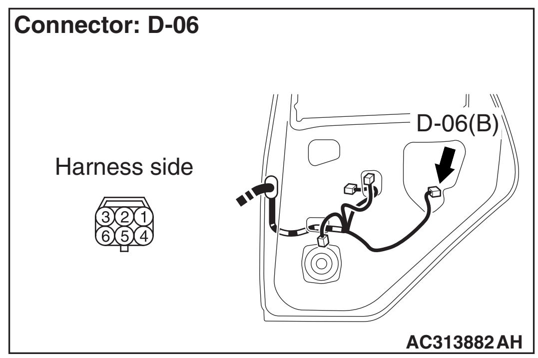
Q: Is the check result normal?

YES : Go to Step 9.

NO : Replace the rear door lock actuator (RH).

Step 9. Connector check: B-132 ETACS-ECU connector, D-06 rear door lock actuator (RH) connector





Q: Is the check result normal?

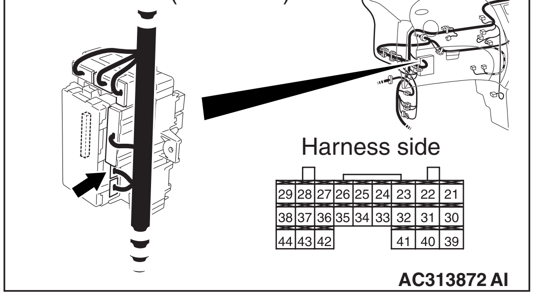
YES : Go to Step 10.

NO : Repair the defective connector.

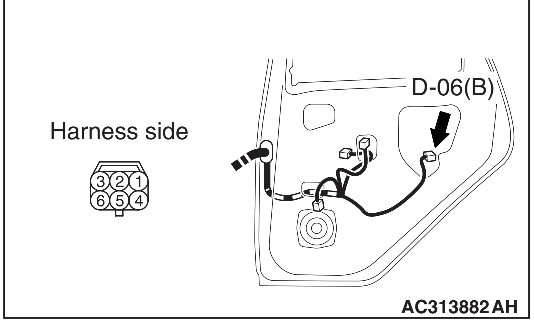
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Step 10. Check the wiring harness from B-132 ETACS-ECU connector terminal Nos.22 and 23 to D-06 rear door lock actuator (RH) connector terminal Nos. 6 and 4.

Connector: B-132
Junction block (Rear view)

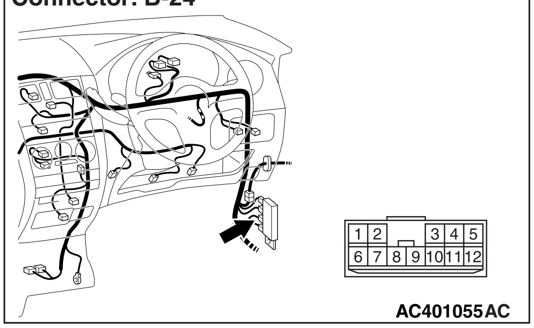


Connector: D-06

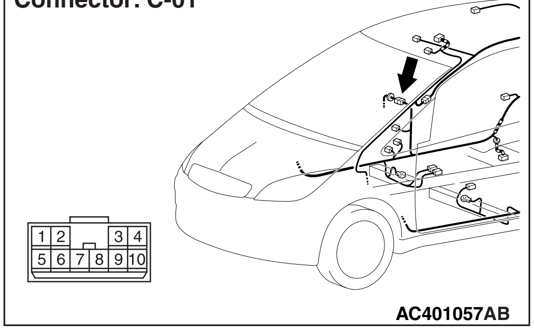


NOTE:

Connector: B-24



Connector: C-01



Prior to the wiring harness inspection, check intermediate connector C-01 and joint connector B-24, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 11. Check the rear door lock actuator (LH)

Check that the rear door lock actuator (LH) works normally. Refer to GROUP 42 – Door P.42-46.

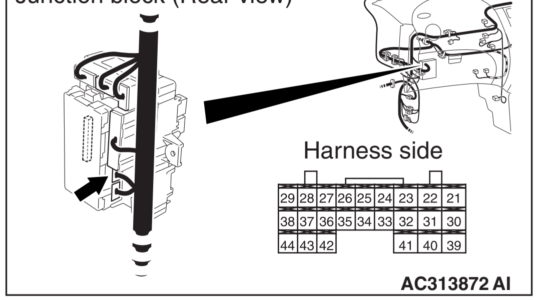
Q: Is the check result normal?

YES : Go to Step 12.

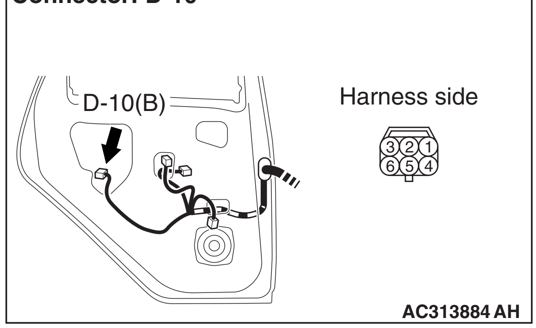
NO : Replace the rear door lock actuator (LH).

Step 12. Connector check: B-132 ETACS-ECU connector, D-10 rear door lock actuator (LH) connector

Connector: B-132
Junction block (Rear view)



Connector: D-10

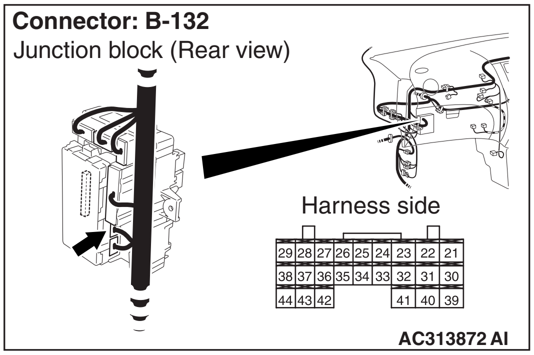


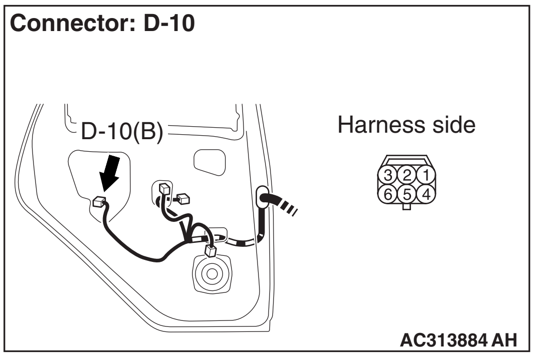
Q: Is the check result normal?

YES : Go to Step 13.

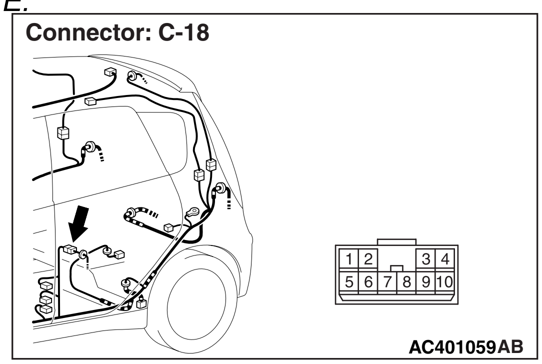
NO : Repair the defective connector.

Step 13. Check the wiring harness from B-132 ETACS-ECU connector terminal Nos.22 and 23 to D-10 rear door lock actuator (LH) connector terminal Nos. 6 and 4.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-18, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 14. Check the tailgate lock actuator

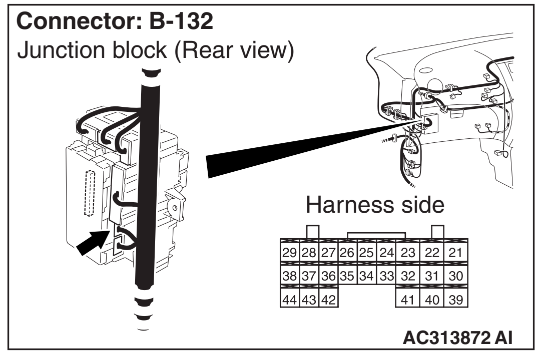
Check that the tailgate lock actuator works normally. Refer to GROUP 42 – tailgate P.42-59.

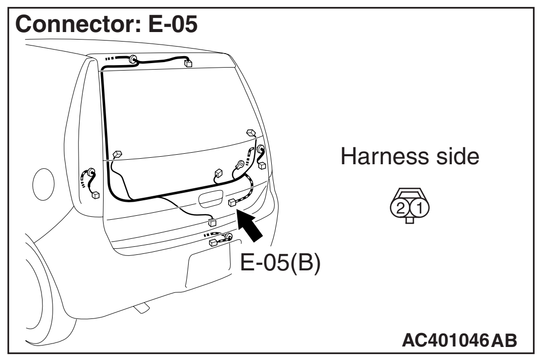
Q: Is the check result normal?

YES : Go to Step 15.

NO : Replace the tailgate lock actuator.

Step 15. Connector check: B-132 ETACS-ECU connector, E-05 tailgate lock actuator connector





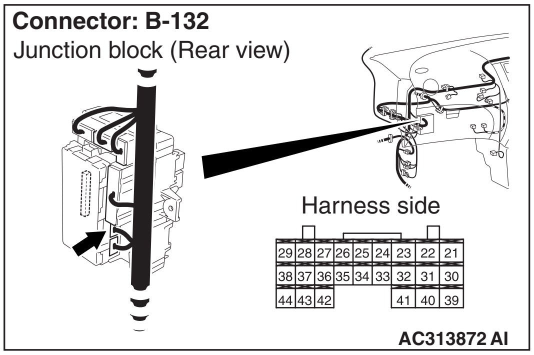
Q: Is the check result normal?

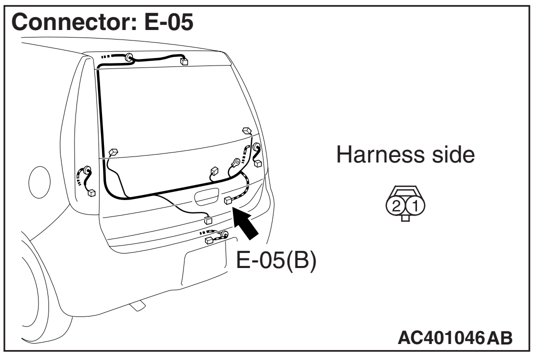
YES : Go to Step16.

NO : Repair the defective connector.

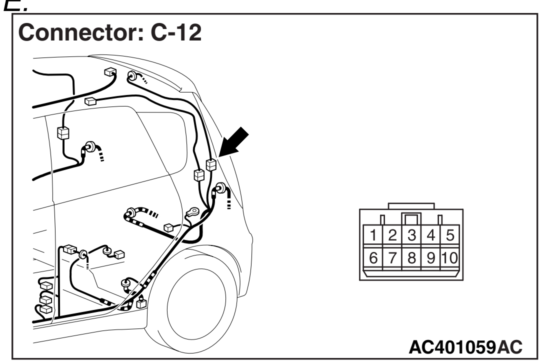
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Step 16. Check the wiring harness from B-132 ETACS-ECU connector terminal Nos.22 and 23 to E-05 tailgate lock actuator connector terminal Nos. 2 and 1.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-12, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

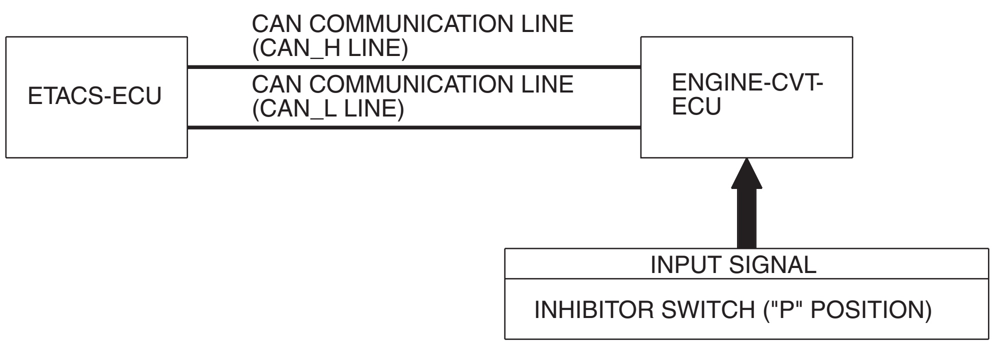
NO : Repair the wiring harness.

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INSPECTION PROCEDURE C-3: Selector "P" position-linked door unlock function does not operate. <CVT>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Selector "P" Position-linked Door Unlock Function



COMMENT ON TROUBLE SYMPTOM

If the doors are not unlocked when the selector lever is shifted to the P position, the shift position signal input circuit(s) or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Checking central door unlocking operation

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure C-1 "Central door locking system does not work P.54B-52."

Step 2. M.U.T.-III other system diagnosis code

Check whether the engine-CVT-ECU-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the CVT (Refer to GROUP 23A – Troubleshooting P.23A-14).

NO : Go to Step 3.

Step 3. Retest the system.

Check that shifting the selector lever to the P position unlocks the doors.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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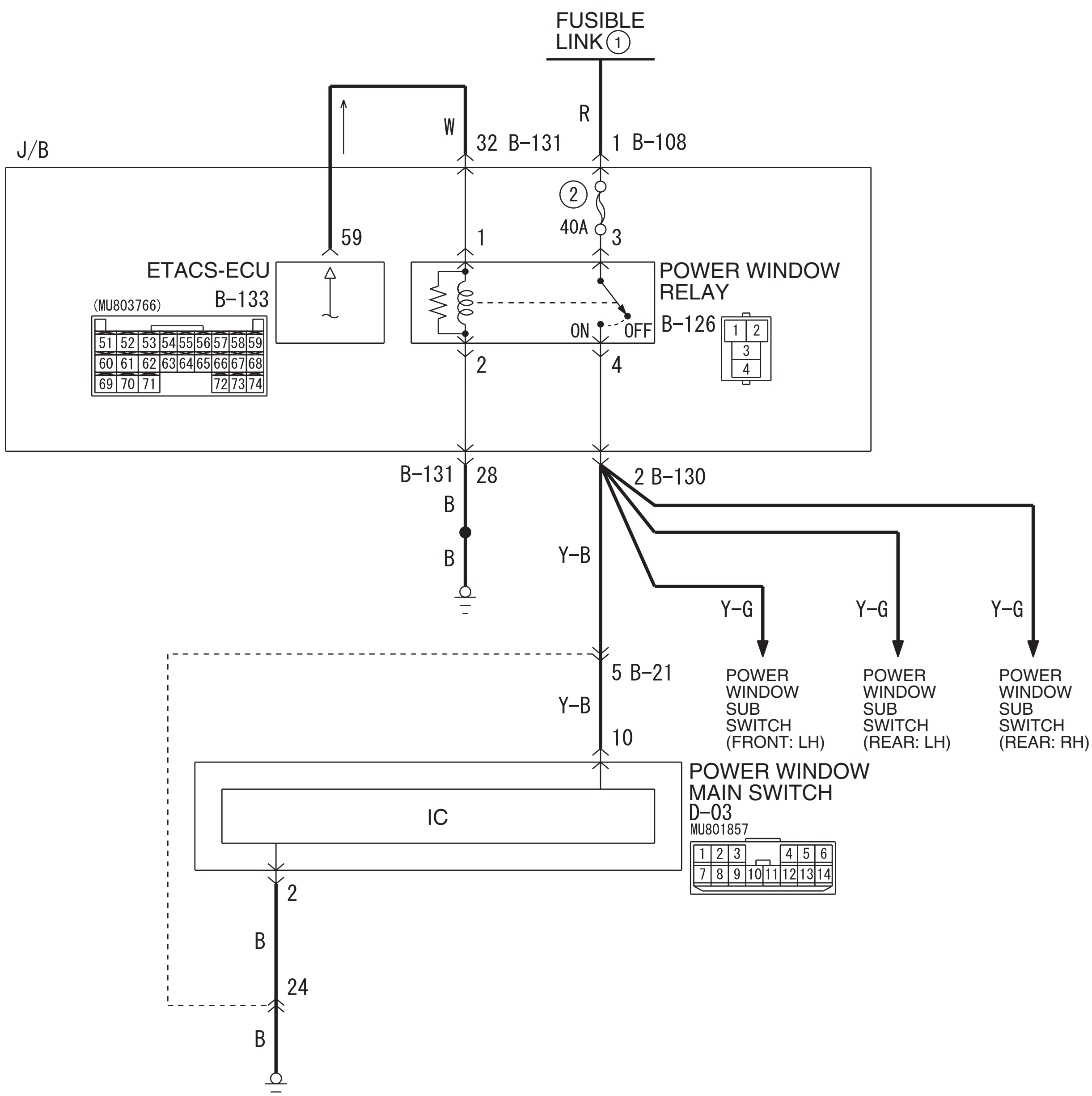
POWER WINDOW

Inspection Procedure D-1: Power windows do not work at all.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Power Window Relay Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54L008A

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COMMENTS ON TROUBLE SYMPTOM

If the power windows do not work at all, the power window relay, the power window main switch or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the power window relay
- Malfunction of the power window main switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Pulse check

Check the input signal from the ignition switch.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON

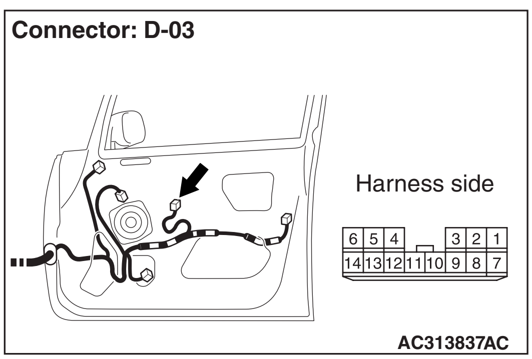
OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 2. Connector check: D-03 power window main switch connector



Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Check the power window main switch.

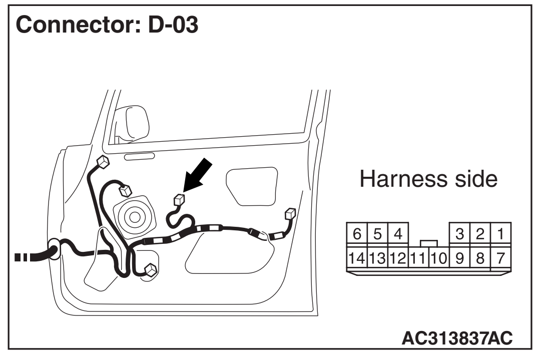
Refer to GROUP 42 – Door P.42-42.

Q: Is the check result normal?

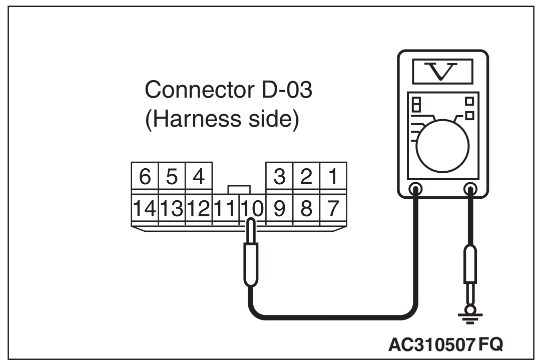
YES : Go to Step 4.

NO : Replace the power window main switch.

Step 4. Voltage measurement at the D-03 power window main switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Ignition switch: ON



(3) Voltage between D-03 power window main switch connector terminal No.10 and body earth.

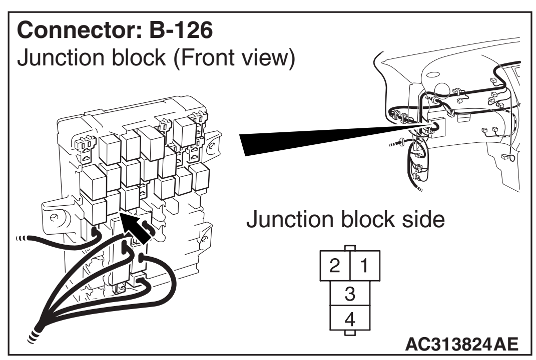
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 13.

NO : Go to Step 5.

Step 5. Connector check: B-126 power window relay connector



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

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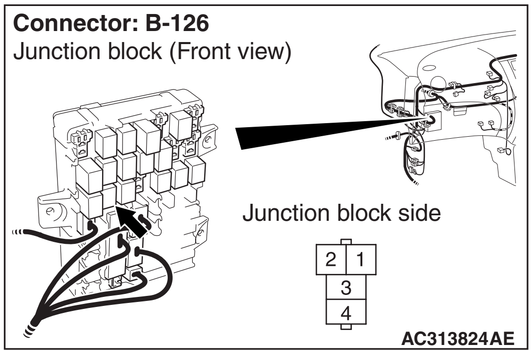
Step 6. Check the power window relay.

Refer to GROUP 42 – Door P.42-36.

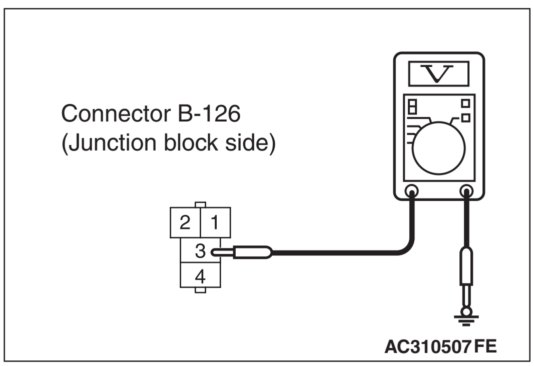
Q: Is the check result normal?

YES : Go to Step 7.
NO : Replace the power window relay.

Step 7. Voltage measurement at the B-126 power window relay connector.



(1) Remove the power window relay, and measure at the junction block side.



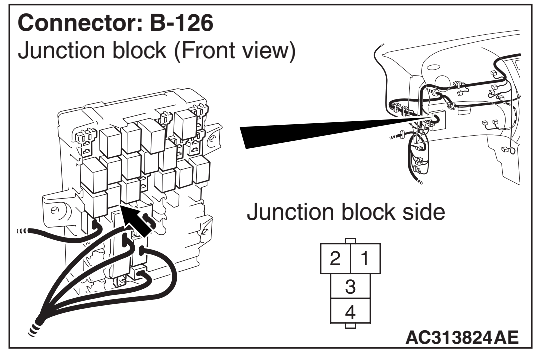
(2) Voltage between B-126 power window relay connector terminal No.3 and body earth.

OK: System voltage

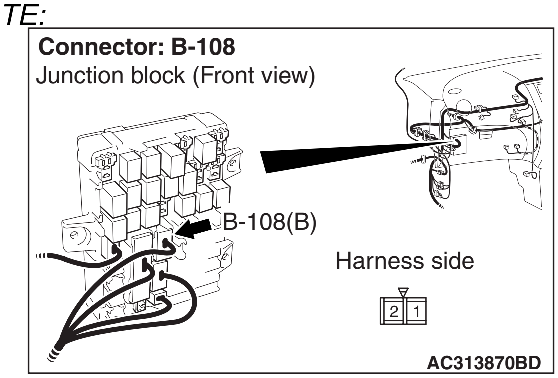
Q: Is the check result normal?

YES : Go to Step 9.
NO : Go to Step 8.

Step 8. Check the wiring harness between B-126 power window relay connector terminal No.3 to fusible link (1).



NOTE:



Prior to the wiring harness inspection, check junction block connector B-108, and repair if necessary.

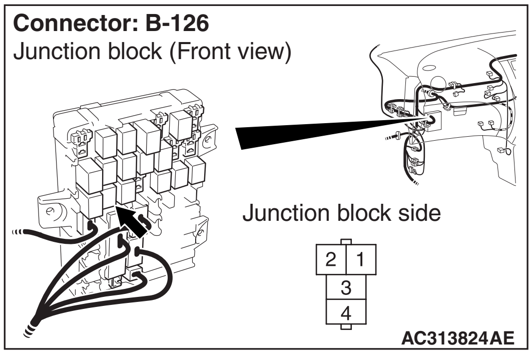
- Check the power supply line for open circuit.

Q: Is the check result normal?

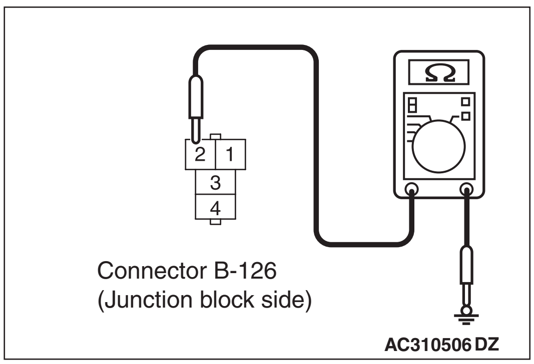
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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Step 9. Resistance measurement at the B-126 power window relay connector.



(1) Remove the power window relay, and measure at the junction block side.



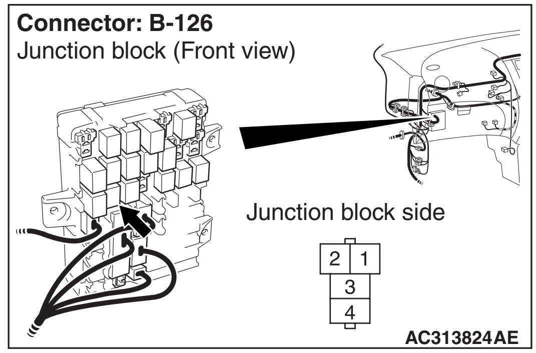
(2) Resistance between B-126 power window relay connector terminal No.2 and body earth.

OK: Continuity exists (2 Ω or less)

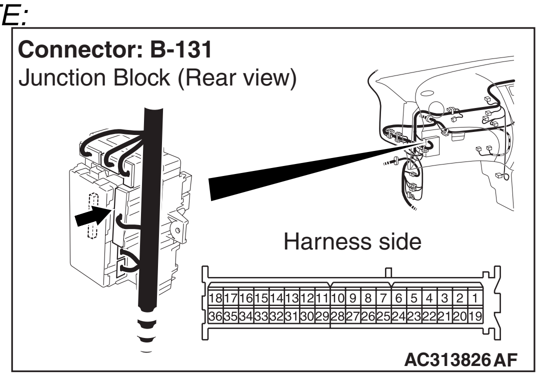
Q: Is the check result normal?

YES : Go to Step 11.
NO : Go to Step 10.

Step 10. Check the wiring harness between B-126 power window relay connector terminal No.2 to body earth.



NOTE:



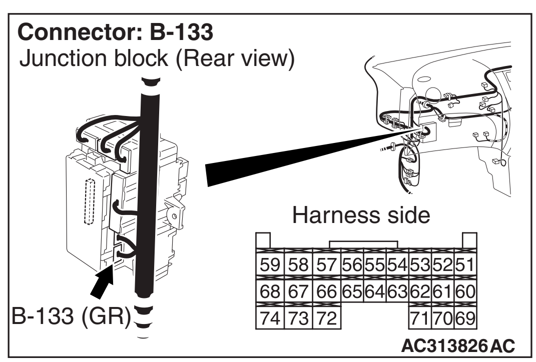
Prior to the wiring harness inspection, check junction block connector B-131, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

Step 11. Connector check: B-133 ETACS-ECU connector

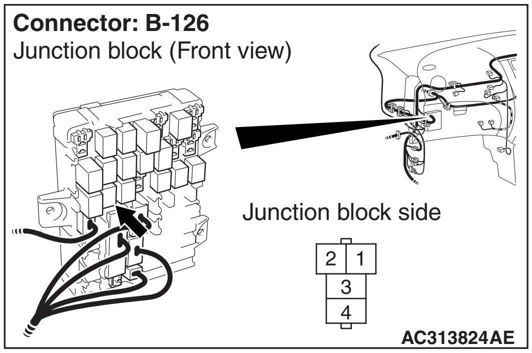


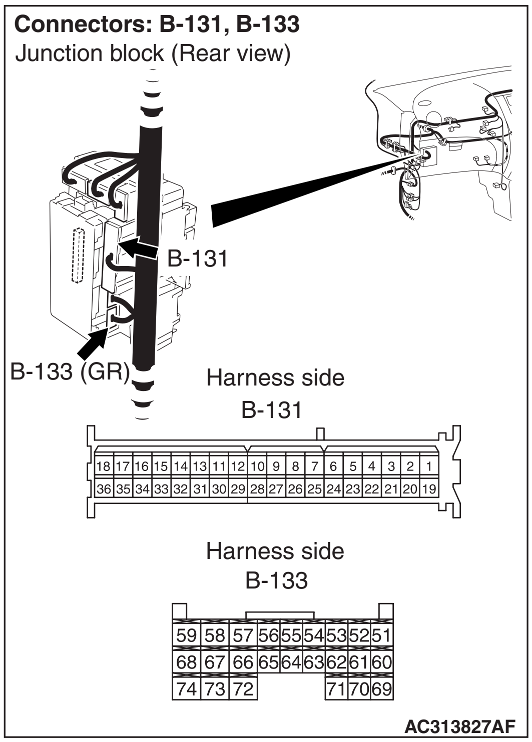
Q: Is the check result normal?

YES : Go to Step 12.
NO : Repair the defective connector.

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Step 12. Check the wiring harness between B-126 power window relay connector terminal No.1 to B-133 ETACS-ECU connector terminal No.59.





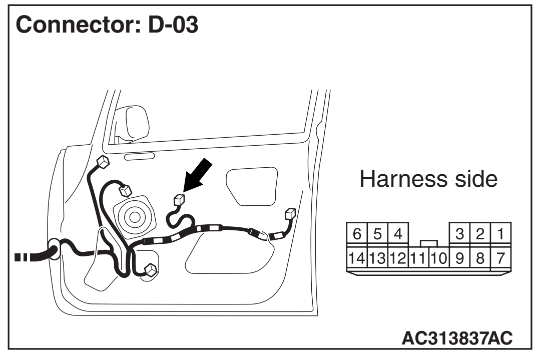
NOTE: Prior to the wiring harness inspection, check junction block connector B-131, and repair if necessary.

- Check the communication lines for open circuit.

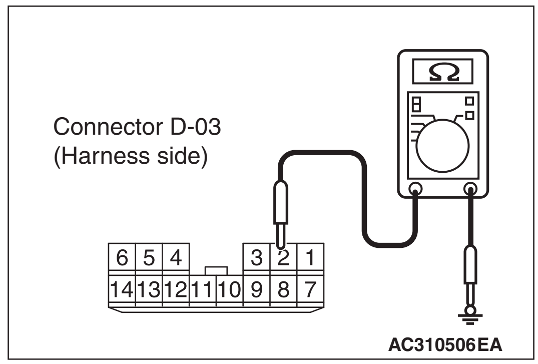
Q: Is the check result normal?

YES : Go to Step 13.
NO : Repair the wiring harness.

Step 13. Resistance measurement at the D-03 power window main switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between D-03 power window main switch connector terminal No.2 and body earth.

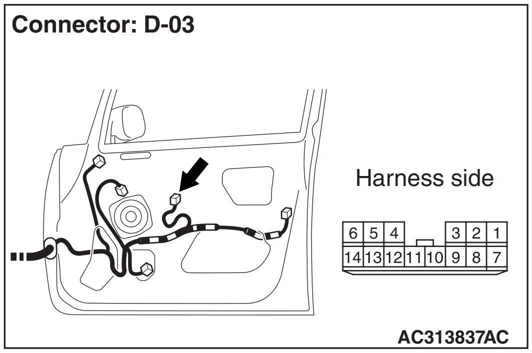
OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

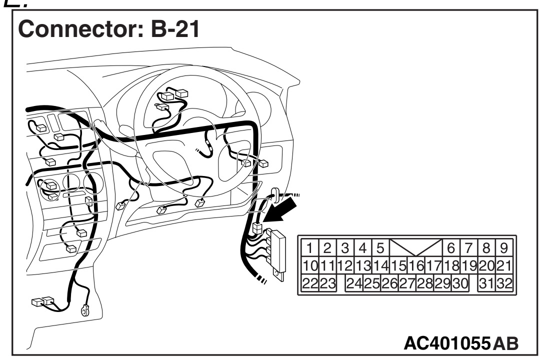
YES : Go to Step 15.
NO : Go to Step 14.

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Step 14. Check the wiring harness between D-03 power window main switch connector terminal No.2 to body earth.



NOTE:



Prior to the wiring harness inspection, check intermediate connectors B-21, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 15. Retest the system.

Check that all the power windows work.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

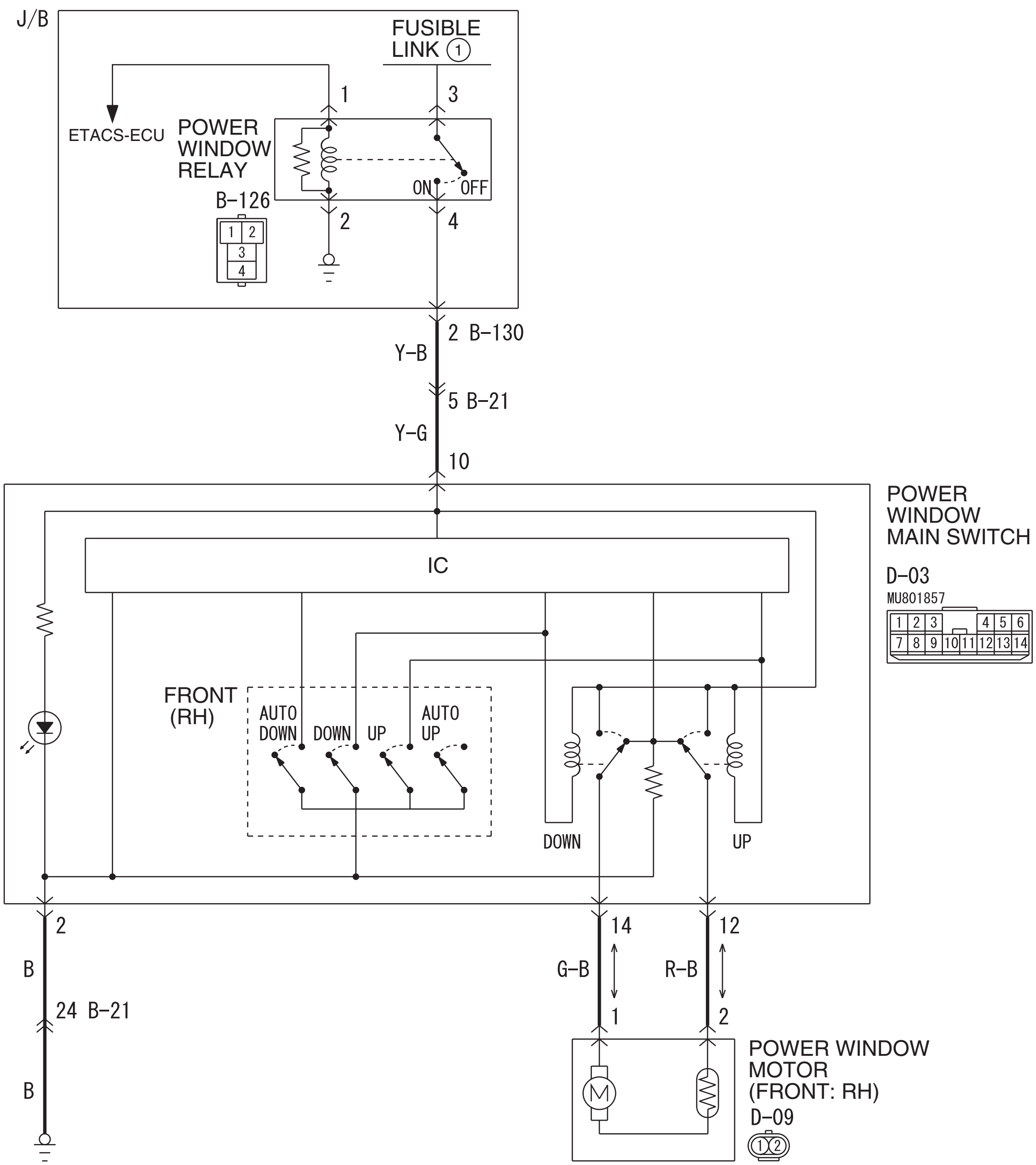
NO : Replace the ETACS-ECU.

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Inspection Procedure D-2: Driver's power window does not work by means of the power window main switch.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Power Window (Front: RH) Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54L009A

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COMMENTS ON TROUBLE SYMPTOM

If the driver's power window does not work by means of the power window main switch, the power window main switch or the driver's door power window motor may be defective.

POSSIBLE CAUSES

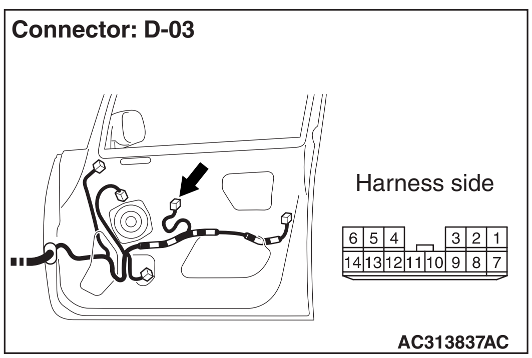
- Malfunction of the power window main switch
- Malfunction of the power window motor (front: RH)
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the power window main switch.
Check that all of the front passenger's and rear door power windows can operate by means of the power window main switch.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54B-62."

Step 2. Connector check: D-03 power window main switch connector

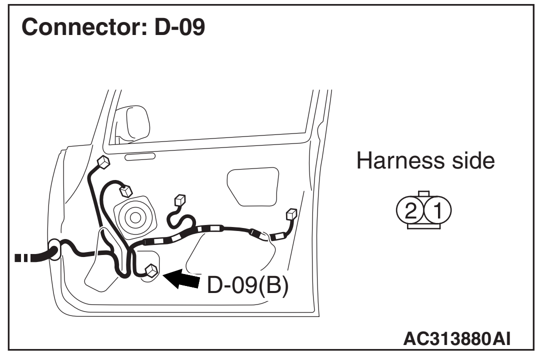


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the connector.

Step 3. Check the power window main switch.
Refer to GROUP 42 – Door P.42-42.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the power window main switch.

Step 4. Connector check: D-09 power window motor (front: RH) connector



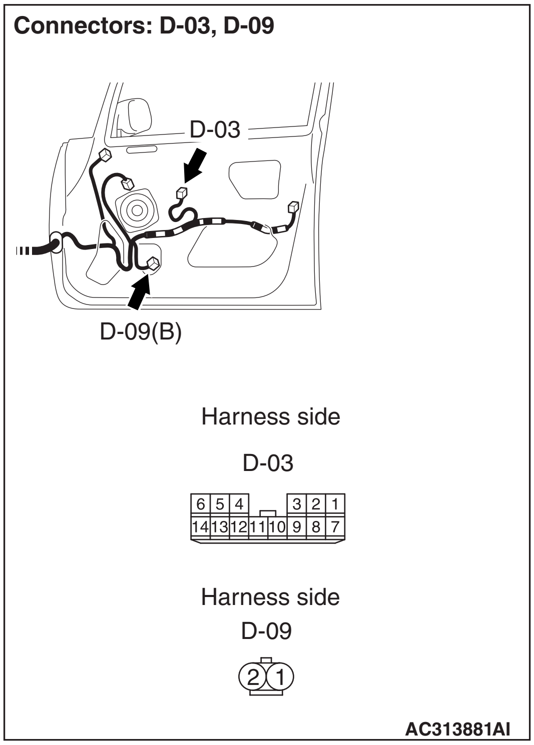
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector.

Step 5. Check the power window motor (front: RH).
Refer to GROUP 42 – Door P.42-36.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the power window motor (front: RH).

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Step 6. Check the wiring harness from D-09 power window motor (front: RH) connector terminal Nos.1 and 2 to D-03 power window main switch connector terminal Nos. 14 and 12.



- Check the input and output lines for open or short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

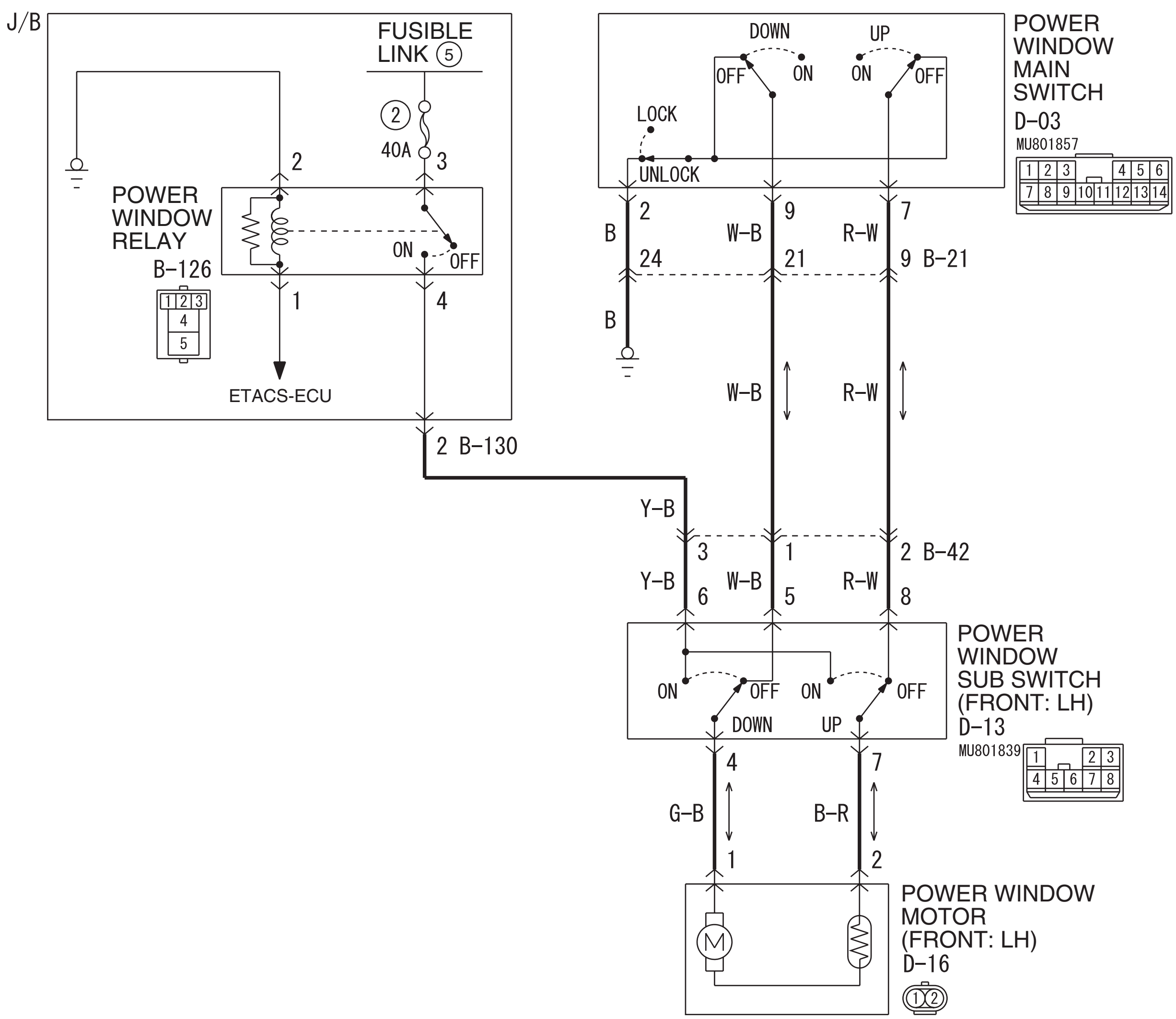
NO : Repair the wiring harness.

Inspection Procedure D-3: Relevant power window(s) do not work by means of the front and rear power window sub switches.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Power Window Sub Switch (Front: LH) Circuit

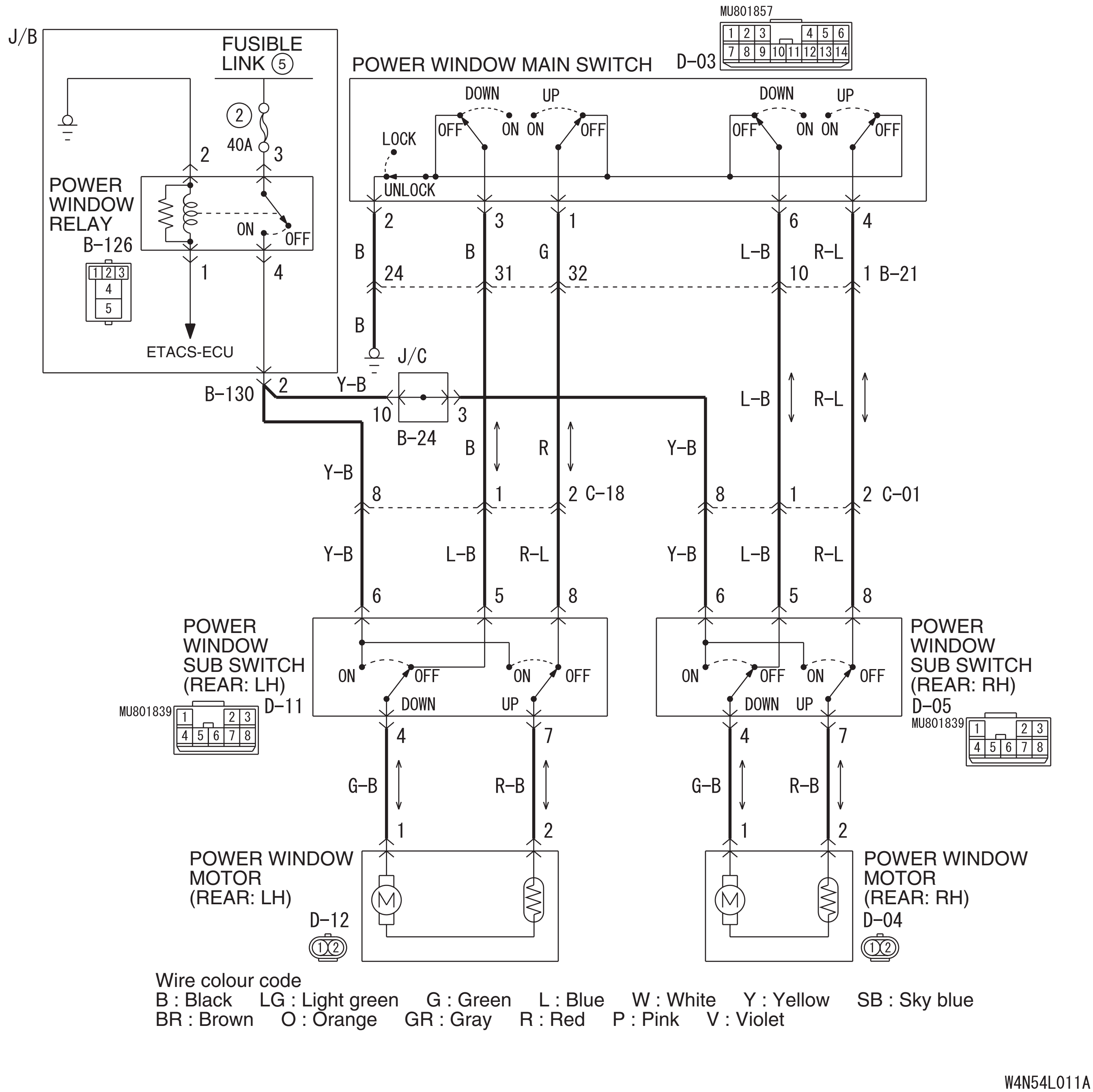


Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

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Power Window Sub Switch (Rear) Circuit



COMMENTS ON TROUBLE SYMPTOM

If the front passenger's or rear power window does not work by means of the respective power window sub switch, the power window sub switch or the power window motor may be defective.

POSSIBLE CAUSES

- Malfunction of the power window sub switch (front: LH), the power window sub switch (rear: RH) or the power window sub switch (rear: LH)
- Malfunction of the power window motor (front: LH), the power window motor (rear: RH) or the power window motor (rear: LH)
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Check the power window main switch.

Check that the power window lock switch is turned off.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Turn off the power window lock switch.

Step 2. Determine a trouble spot.

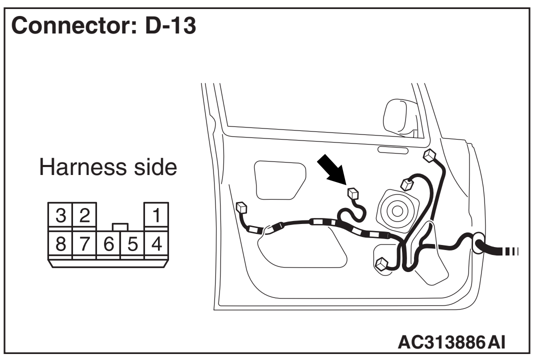
Q: Which power window does not work?

Passenger's door : Go to Step 3.

Rear right door : Go to Step 10.

Rear left door : Go to Step 17.

Step 3. Connector check: D-13 power window sub switch (front: LH) connector.



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

Step 4. Check the power window sub switch (front: LH).

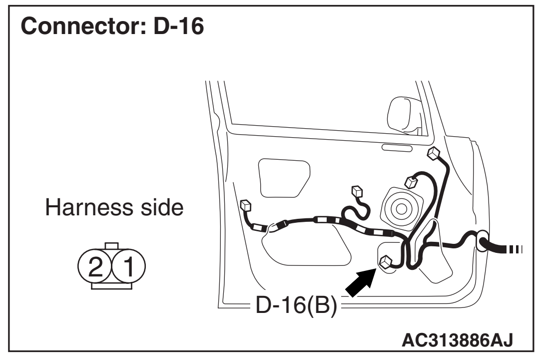
Refer to GROUP 42 – Door P.42-36.

Q: Is the check result normal?

YES : Go to Step 5

NO : Replace the power window sub switch (front: LH).

Step 5. Connector check: D-16 power window motor (front: LH) connector



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

Step 6. Check the power window motor (front: LH).

Refer to GROUP 42 – Door P.42-36.

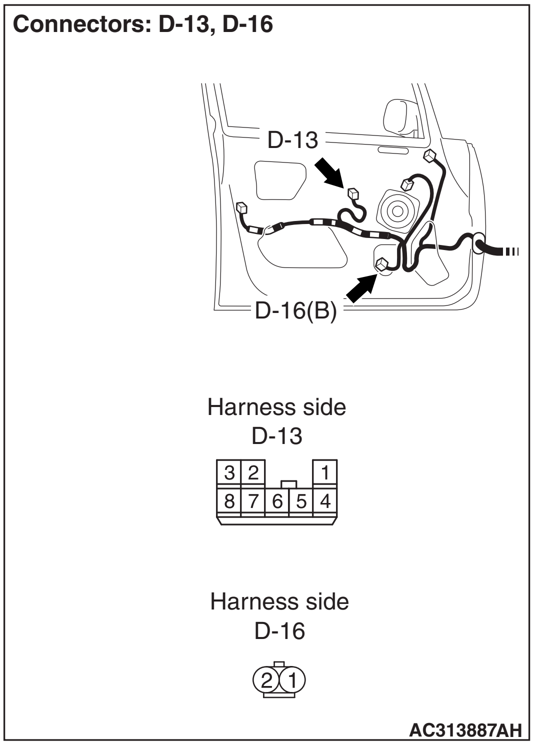
Q: Is the check result normal?

YES : Go to Step 7

NO : Replace the power window motor (front: LH).

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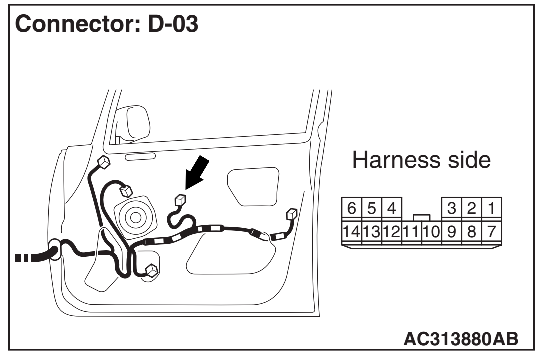
Step 7. Check the wiring harness from D-16 power window motor (front: LH) connector terminal Nos.1 and 2 to D-13 power window sub switch (front: LH) connector terminal Nos.4 and 7.

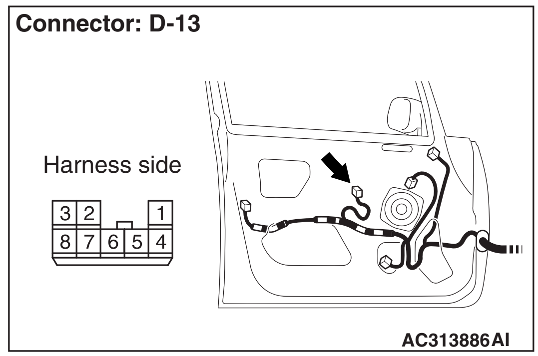


- Check the input and output lines for open or short circuit.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the wiring harness.

Step 8. Connector check: D-03 power window main switch connector and D-13 power window sub switch (front: LH) connector

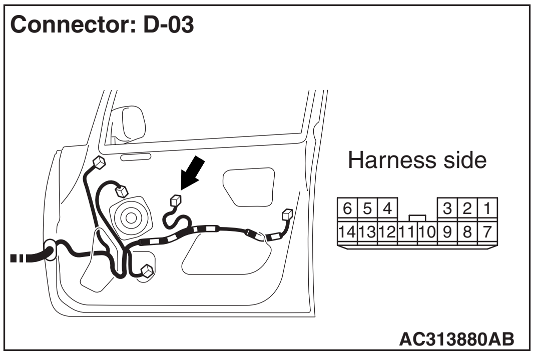


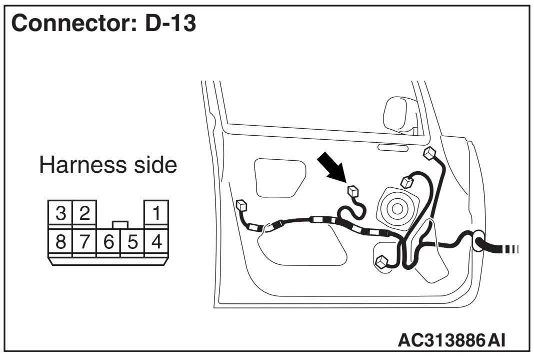


Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the connector.

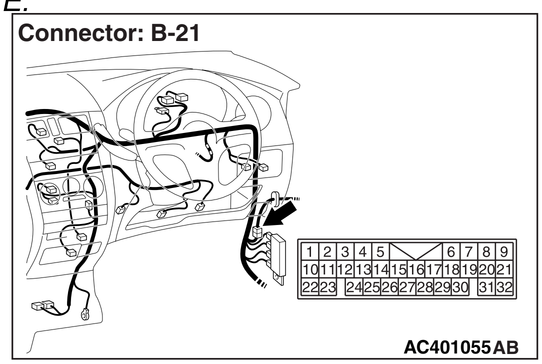
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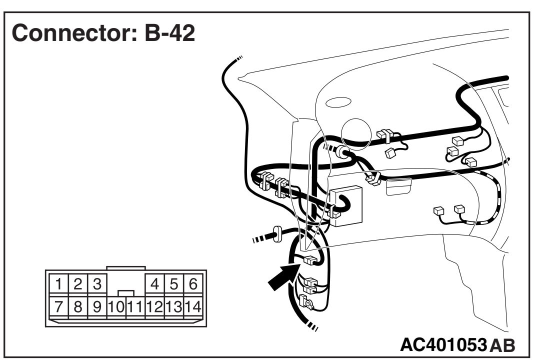
Step 9. Check the wiring harness from D-03 power window main switch connector terminal Nos.9 and 7 to D-13 power window sub switch (front: LH) connector terminal Nos.5 and 8.





NOTE:





Prior to the wiring harness inspection, check intermediate connectors B-21, B-42 and repair if necessary.

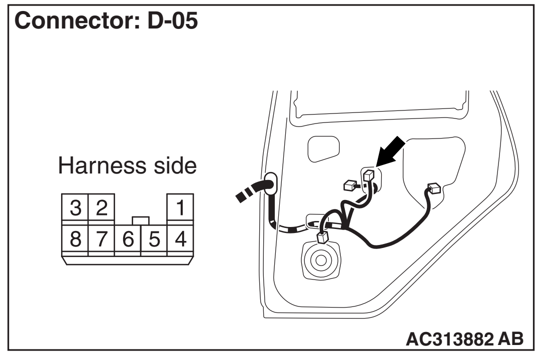
- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 10. Connector check: D-05 power window sub switch (rear: RH) connector.



Q: Is the check result normal?

YES : Go to Step 11.

NO : Repair the connector.

Step 11. Check the power window sub switch (rear: RH).

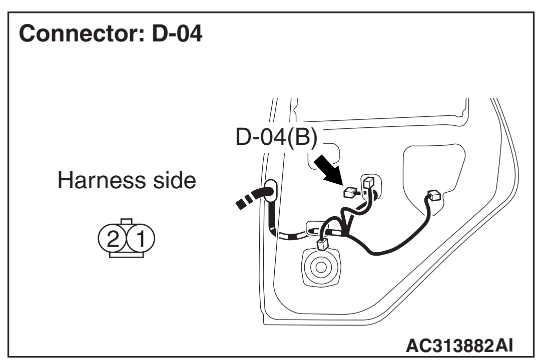
Refer to GROUP 42 – Door P.42-36.

Q: Is the check result normal?

YES : Go to Step 12

NO : Replace the power window sub switch (rear: RH).

Step 12. Connector check: D-04 power window motor (rear: RH) connector.



Q: Is the check result normal?

YES : Go to Step 13.

NO : Repair the connector.

Step 13. Check the power window motor (rear: RH).

Refer to GROUP 42 – Door P.42-36.

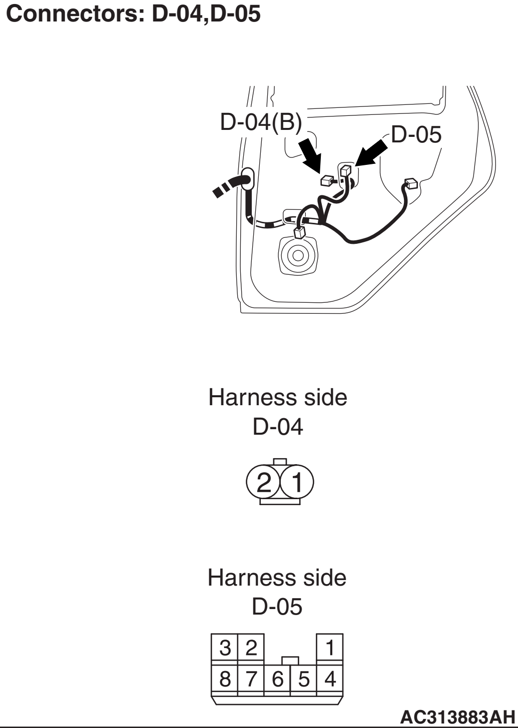
Q: Is the check result normal?

YES : Go to Step 14

NO : Replace the power window motor (rear: RH).

Step 14. Check the wiring harness from D-04 power window motor (rear: RH) connector terminal Nos.1 and 2 to D-05 power window sub switch (rear: RH) connector terminal Nos.4 and 7.

Connectors: D-04,D-05



- Check the input and output lines for open or short circuit.

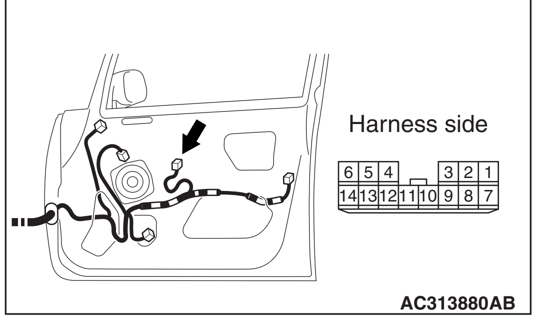
Q: Is the check result normal?

YES : Go to Step 15.

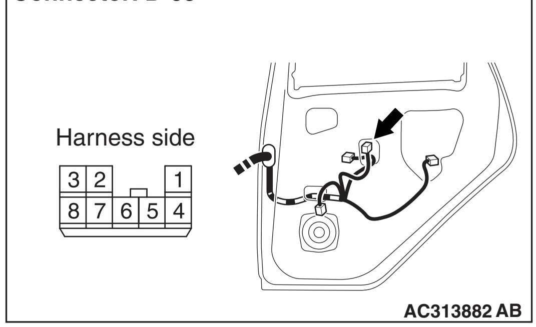
NO : Repair the wiring harness.

Step 15. Connector check: D-03 power window main switch connector and D-05 power window sub switch (rear: RH) connector

Connector: D-03



Connector: D-05



Q: Is the check result normal?

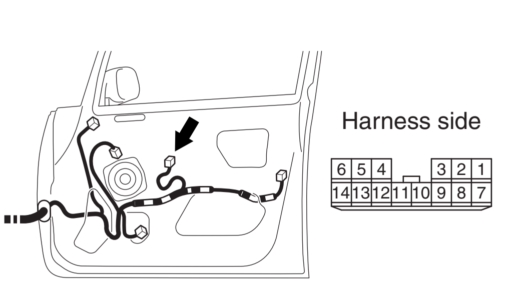
YES : Go to Step 16.

NO : Repair the connector.

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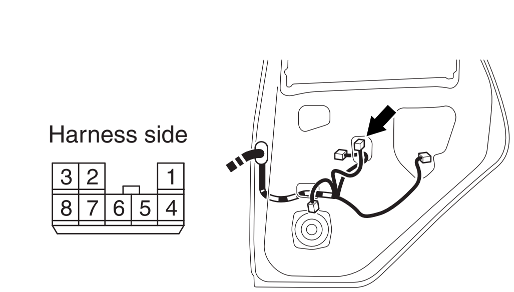
Step 16. Check the wiring harness from D-03 power window main switch connector terminal Nos.6 and 4 to D-05 power window sub switch (rear: RH) connector terminal Nos.5 and 8.

Connector: D-03



AC313880AB

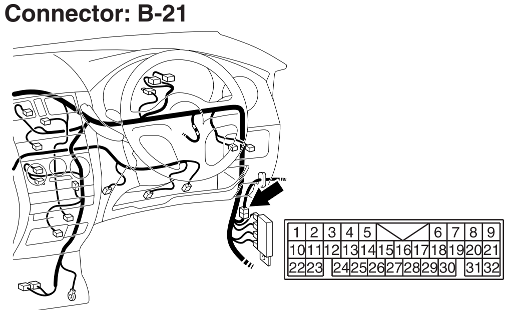
Connector: D-05



AC313882 AB

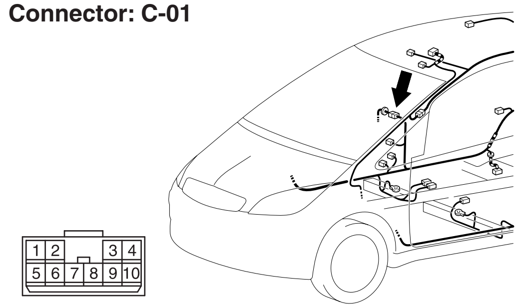
NOTE:

Connector: B-21



AC401055AB

Connector: C-01



AC401057AB

Prior to the wiring harness inspection, check intermediate connectors B-21, C-01, and repair if necessary.

- Check the communication lines for open circuit.

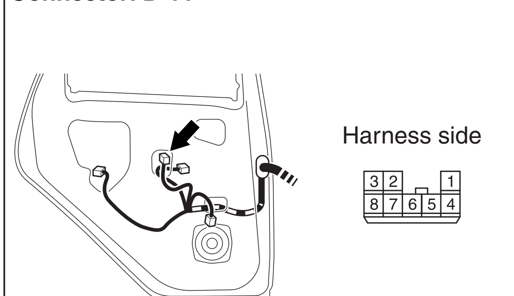
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 17. Connector check: D-11 power window sub switch (rear: LH) connector.

Connector: D-11



AC313884AB

Q: Is the check result normal?

YES : Go to Step 18.

NO : Repair the connector.

Step 18. Check the power window sub switch (rear: LH).

Refer to GROUP 42 – Door P.42-36.

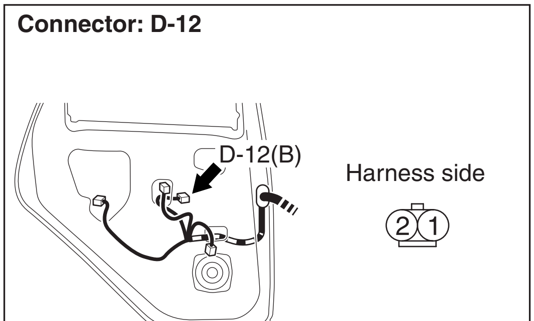
Q: Is the check result normal?

YES : Go to Step 19

NO : Replace the power window sub switch (rear: LH).

Step 19. Connector check: D-12 power window motor (rear: LH) connector.

Connector: D-12



AC313884AI

Q: Is the check result normal?

YES : Go to Step 20.

NO : Repair the connector.

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Step 20. Check the power window motor (rear: LH).

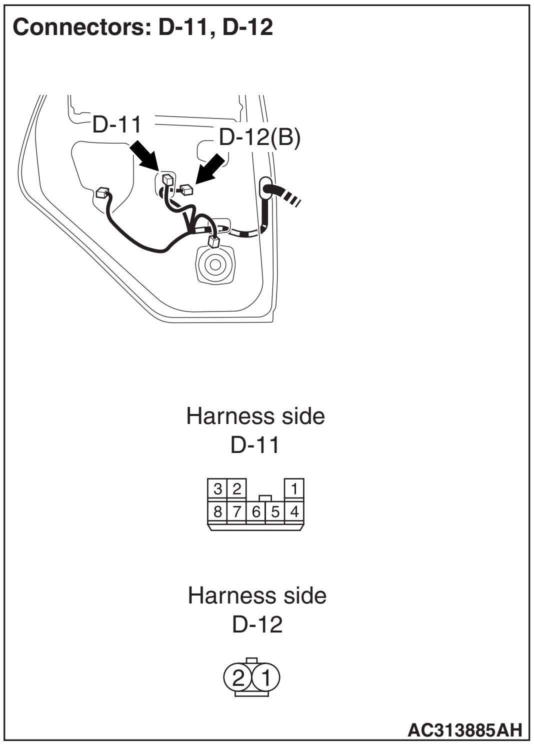
Refer to GROUP 42 – Door P.42-36.

Q: Is the check result normal?

YES : Go to Step 21

NO : Replace the power window motor (rear: LH).

Step 21. Check the wiring harness from D-12 power window motor (rear: LH) connector terminal Nos.1 and 2 to D-11 power window sub switch (rear: LH) connector terminal Nos.4 and 7.



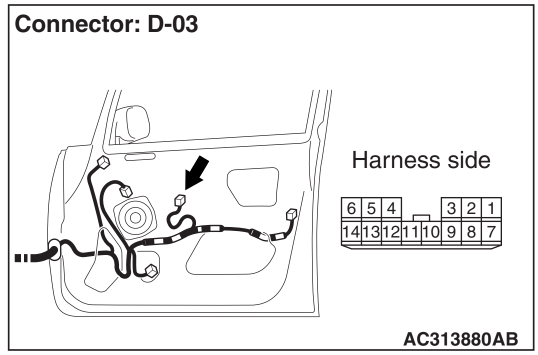
- Check the input and output lines for open or short circuit.

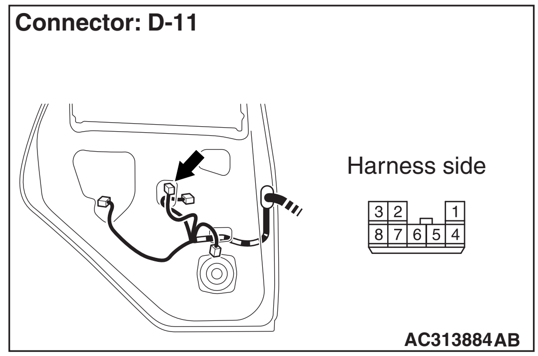
Q: Is the check result normal?

YES : Go to Step 22.

NO : Repair the wiring harness.

Step 22. Connector check: D-03 power window main switch connector and D-11 power window sub switch (rear: LH) connector



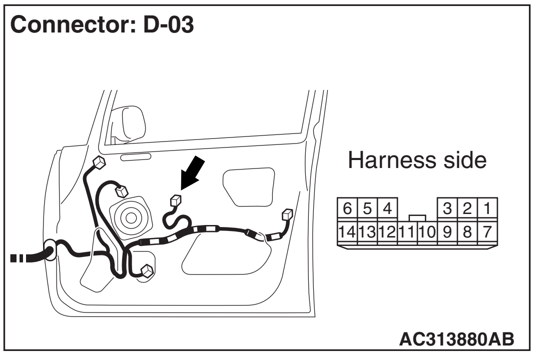


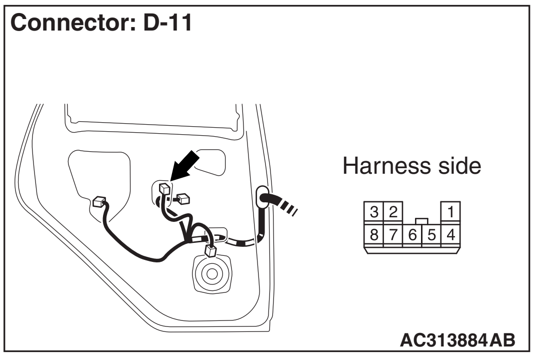
Q: Is the check result normal?

YES : Go to Step 23.

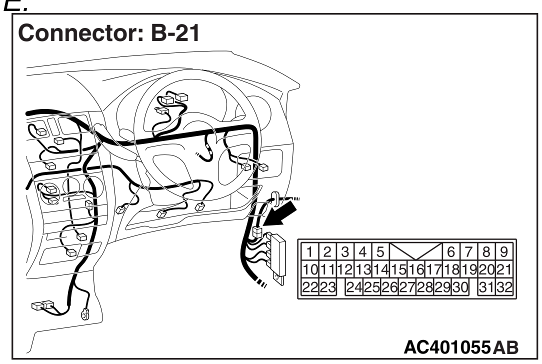
NO : Repair the connector.

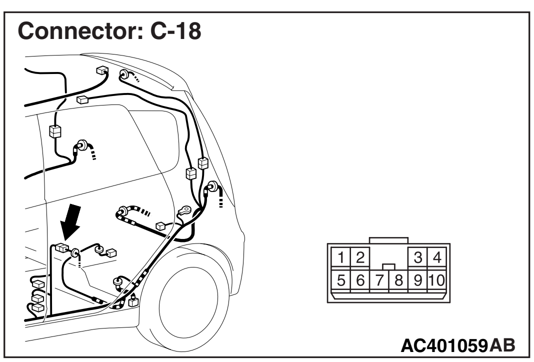
Step 23. Check the wiring harness from D-03 power window main switch connector terminal Nos.3 and 1 to D-11 power window sub switch (rear: LH) connector terminal Nos.5 and 8.





NOTE:





Prior to the wiring harness inspection, check intermediate connectors B-21, C-18, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

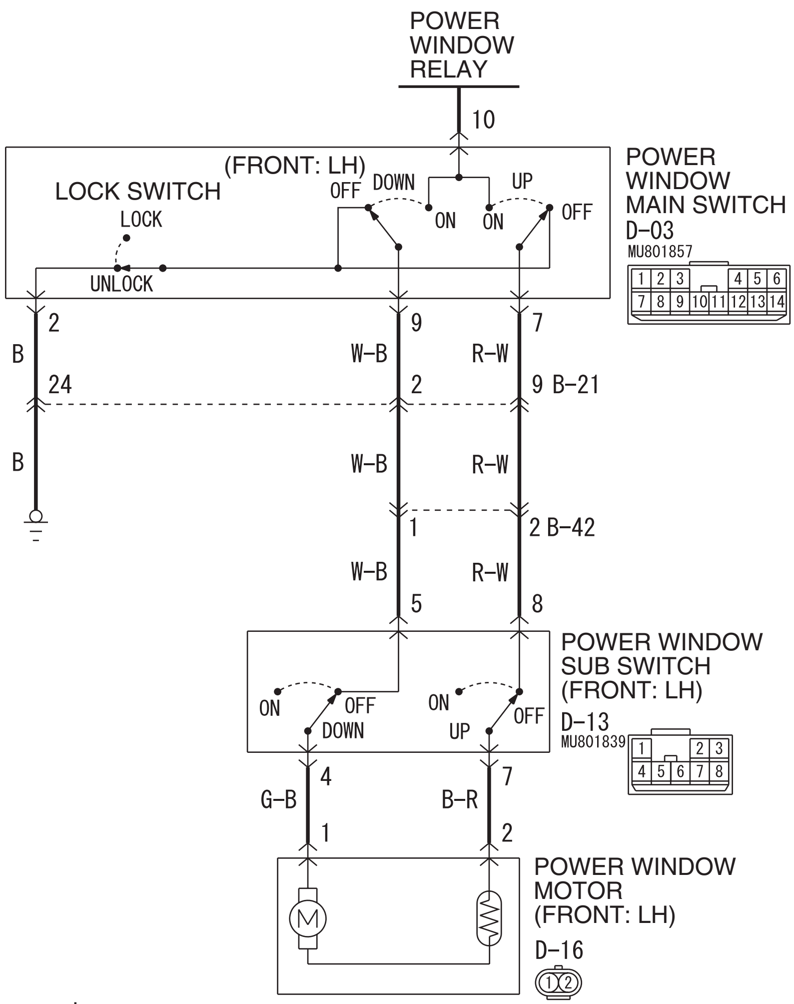
NO : Repair the wiring harness.

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Inspection Procedure D-4: Passenger's and/or rear power window(s) do not work by means of the power window main switch.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Power Window (Front: LH) Circuit

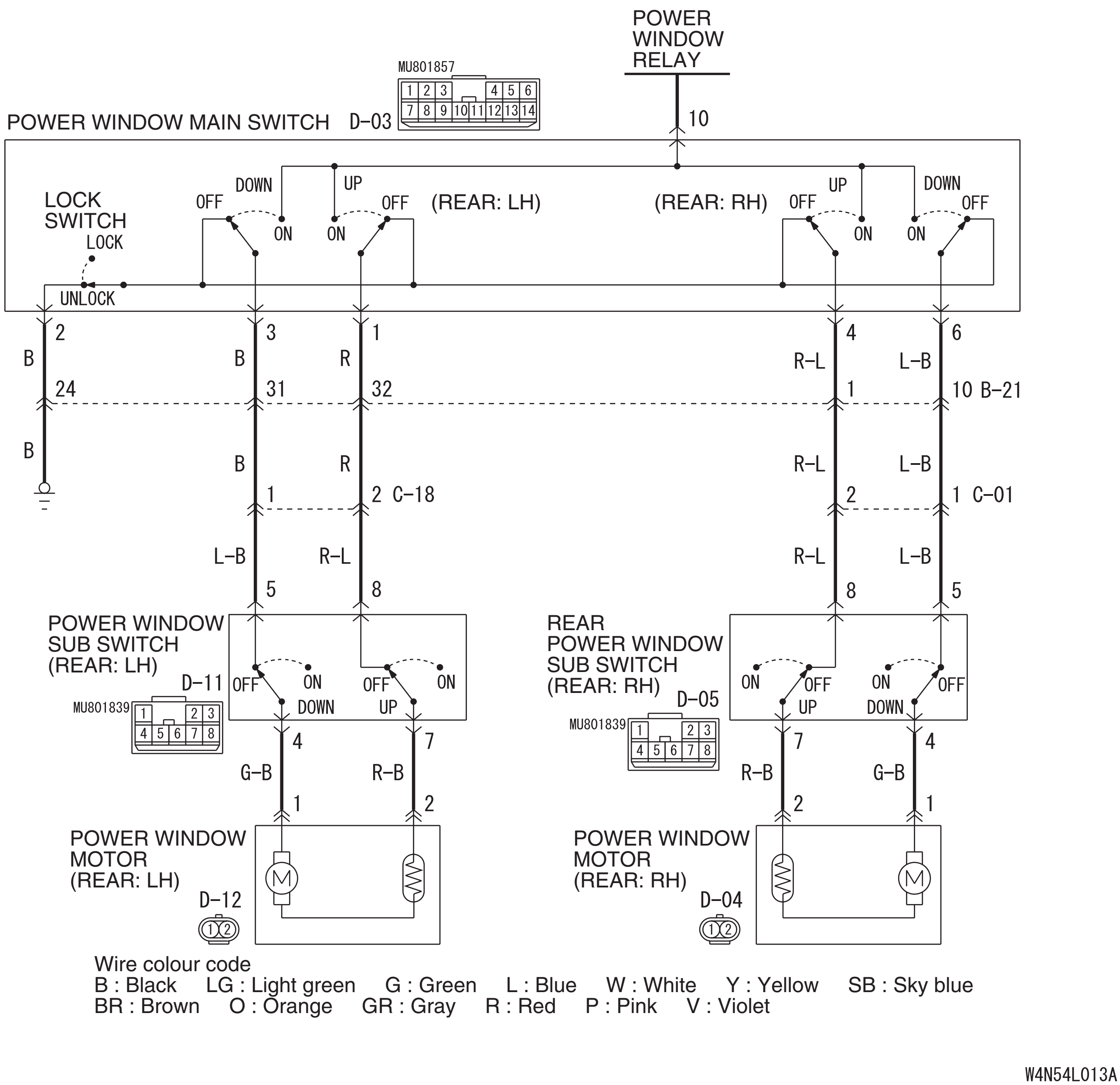


Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54L012A

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Power Window (Rear) Circuit



COMMENTS ON TROUBLE SYMPTOM

If the passenger's and/or rear power window does not work by means of the power window main switch, the power window main switch or the respective power window sub switch(es) may be defective.

POSSIBLE CAUSES

- Malfunction of the power window main switch
- Malfunction of the power window sub switch (front: LH), power window sub switch (rear: RH) or power window sub switch (rear: LH)
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the power window main switch.

Check that the driver's power window works by means of the power window main switch.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure D-2 "Driver's power window does not work by means of the power window main switch P.54B-68."

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Step 2. Check the power window sub switch.

Check that each power window works by means of the respective power window sub switch when the power window lock switch is turned off.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure D-3 "Relevant power window(s) do not work by means of the front and rear power window sub switches P.54B-71."

Step 3. Retest the system.

Check that the rear left power window works by means of the power window main switch.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the power window main switch.

Inspection Procedure D-5: The power window timer function does not work normally.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the power window timer function does not work normally, these input signal circuit(s), the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the driver's door switch
- Malfunction of the passenger's door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure A-2 "Check the ETACS-ECU battery power supply circuit" P.54B-43.

Step 2. Pulse check

Check the input signals below, which are related to the power window timer function.

System switch	Check conditions
Ignition switch (IG1)	When turned from ACC to ON
Driver's door switch	When the driver's door is opened
Passenger’s door switch	When the passenger's door is opened

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check results normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (IG1) signal is not received. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

The driver’s door switch signals is not received. : Refer to inspection procedure N-3 "The driver's door switch signal is not received P.54B-204."

The passenger’s door switch signals is not received. : Refer to inspection procedure N-14 "The passenger's door switch signal is not received P.54B-231."

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Step 3. Retest the system.
Check that the power window timer function works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

Inspection Procedure D-6: The window glass lowers automatically while it is rising.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the sliding resistance is too great when the window is being raised or the window glass encounters an object, the window glass will lower by approximately 150 mm.

POSSIBLE CAUSES

- Improper adjusted door window glass
- Incorrectly installed or warped glass slider
- Malfunction of the power window motor
- Malfunction of the window regulator

DIAGNOSIS PROCEDURE

Step 1. Check the power window operating current.
Check that the power window operating current is normal (Refer to GROUP 42 – Door – On-vehicle service P.42-35).

Q: Is the check result normal?

YES : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-34), and then go to Step 2.
NO : Replace the defective power window motor assembly which operating current are abnormal.

Step 2. Check that the door window glasses are installed correctly.
Check that the door window glasses are installed correctly. Refer to GROUP 42 – Door – On-vehicle Service P.42-34.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-34).

Step 3. Retest the system.
Check that the power window does not lower automatically while it is being raised.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the power window motor assembly of the defective window.

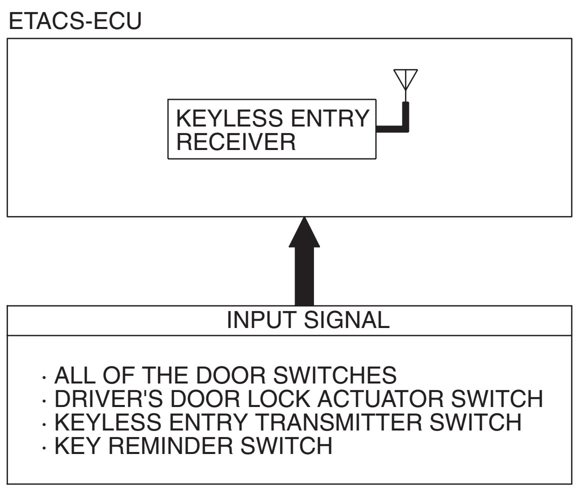
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KEYLESS ENTRY SYSTEM

INSPECTION PROCEDURE E-1: Keyless entry system does not work.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Keyless Entry System Function Circuit



W3Z16E04AA

COMMENTS ON TROUBLE SYMPTOM

If the keyless entry system does not work normally, the input signal circuits to the components below or the ETACS-ECU may be defective.

- Key reminder switch
- All of the door switches
- Keyless entry transmitter
- Driver's door lock actuator

POSSIBLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of the keyless entry transmitter
- Malfunction of the driver's door lock actuator
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

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Step 2. Pulse check

Check the input signals below which are related to the keyless entry system.

System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out
All of the door switches	A door is opened when all the doors are closed
Driver's door lock actuator switch	When the driver's key cylinder or inside lock knob is unlocked or locked
Keyless entry transmitter switch	When the switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally. : Go to Step 3.

The key reminder switch signal is not received. : Refer to Inspection Procedure N-7 "The key reminder switch signal is not received P.54B-210."

All the door switch signals are not received. : Refer to Inspection Procedure N-10 "All the door switch signals are not received P.54B-219."

The driver's door lock actuator switch signal is not received. : Refer to Inspection Procedure N-11 "The driver's door lock actuator signal is not received P.54B-223."

The keyless entry transmitter switch signal is not received. : Refer to Inspection Procedure N-12 "Each switch signal of the keyless entry transmitter is not received P.54B-226."

Step 3. Retest the system.

Check the keyless entry system works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE E-2: Keyless Entry hazard lamp answerback function or the Room Lamp Answerback Function does not Work Normally.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the hazard warning lamp and the room lamp work normally, the ETACS-ECU may be defective. Alternatively, it is possible that the keyless entry hazard lamp answerback function was disabled by the customize function.

POSSIBLE CAUSES

- Malfunction of the turn-signal lamp
- Malfunction of the room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the operation of the hazard warning lamp.

Check that the hazard warning lamps illuminate normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure L-2 "The hazard warning lamps do not illuminate P.54B-169."

Step 2. Check the operation of the room lamps.

Check that the room lamps illuminate normally.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure M-1 "The Interior lamp (room lamp, luggage compartment lamp) does not illuminate or extinguish normally P.54B-183."

Step 3. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 4. Retest the system.

Check that the keyless entry hazard lamp answerback function or the room lamp answerback function work normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

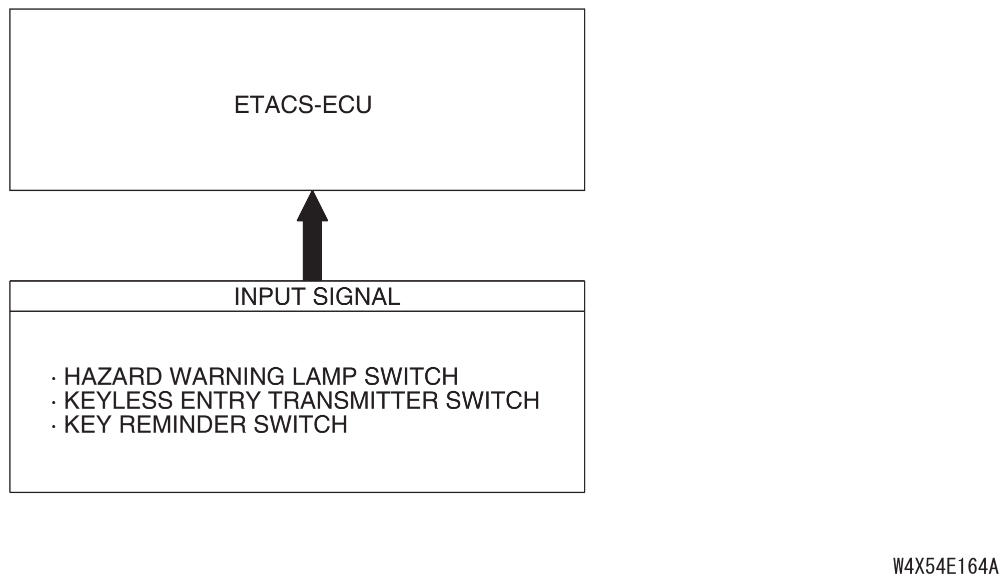
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE E-3: Encrypted Code cannot be Registered.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Encrypted Transmitter Code Register Mode



COMMENTS ON TROUBLE SYMPTOM

If the encrypted code registration mode is not entered, the key reminder switch, the hazard warning lamp switch or the ETACS-ECU may be defective. If the registration is not possible although the registration mode is entered, the keyless entry transmitter or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the keyless entry transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the encrypted code registration mode.

Check that the encrypted code registration mode is entered.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Go to Step 3.

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Step 2. Pulse check

Check the input signals below which are related to the encrypted code of the keyless entry transmitter.

System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out
Hazard warning lamp switch	When the switch is turned from off to on
Keyless entry transmitter switch	When the switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally. : Go to Step 3.

The key reminder switch signal is not received. : Refer to Inspection Procedure N-7 "The key reminder switch signal is not received P.54B-210."

The hazard warning lamp switch signal is not received. : Refer to Inspection Procedure N-9 "The hazard warning lamp switch signal is not received P.54B-216."

The keyless entry transmitter switch signal is not received. : Refer to Inspection Procedure N-12 "Each switch signal of the keyless entry transmitter is not received P.54B-226."

Step3. Retest the system.

Check that the encrypted code can be registered.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE E-4: Multimode keyless entry system function does not work at all.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the power windows and the electric-folding door mirrors work normally, the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of the keyless entry transmitter

DIAGNOSIS PROCEDURE

Step 1. Check the electric retractable remote controlled door mirror.

Check that the electric retractable remote controlled door mirror works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure H-1 "Electric retractable remote controlled door mirror does not work at all P.54B-121."

Step 2. Check the operation of the keyless entry system.

Check that the keyless entry system works normally.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure E-1 "Keyless entry system does not work P.54B-84."

Step 3. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 4. Retest the system.

Check that the multi-mode keyless entry system works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE E-5: The Timer Lock Function does not Work after the Doors have been Unlocked by the Keyless Entry System.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENT ON TROUBLE SYMPTOM

If the keyless entry timer lock does not work normally, the input signal circuit(s) to the keyless entry transmitter or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the keyless entry transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the operation of the keyless entry system.

Check that the keyless entry system works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure E-1 "Keyless entry system does not work P.54B-84."

Step 2. Customize function by using the SWS monitor.

"KEYLESS LOCK T" is set to one of the followings by using SWS monitor customisation function. Check that the timer lock is activated according to the setting.

- 30s
- 60s
- 120s
- 180s

⚠ CAUTION

The SWS monitor must be used in order to confirm and change that setting. Use the SWS monitor to confirm and/or change the customised function.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Enable the keyless entry timer lock function by using the SWS monitor customise function (Refer to GROUP 54C – Customize function P.54C-240).

Step 3. Retest the system.

Check that the timer lock works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

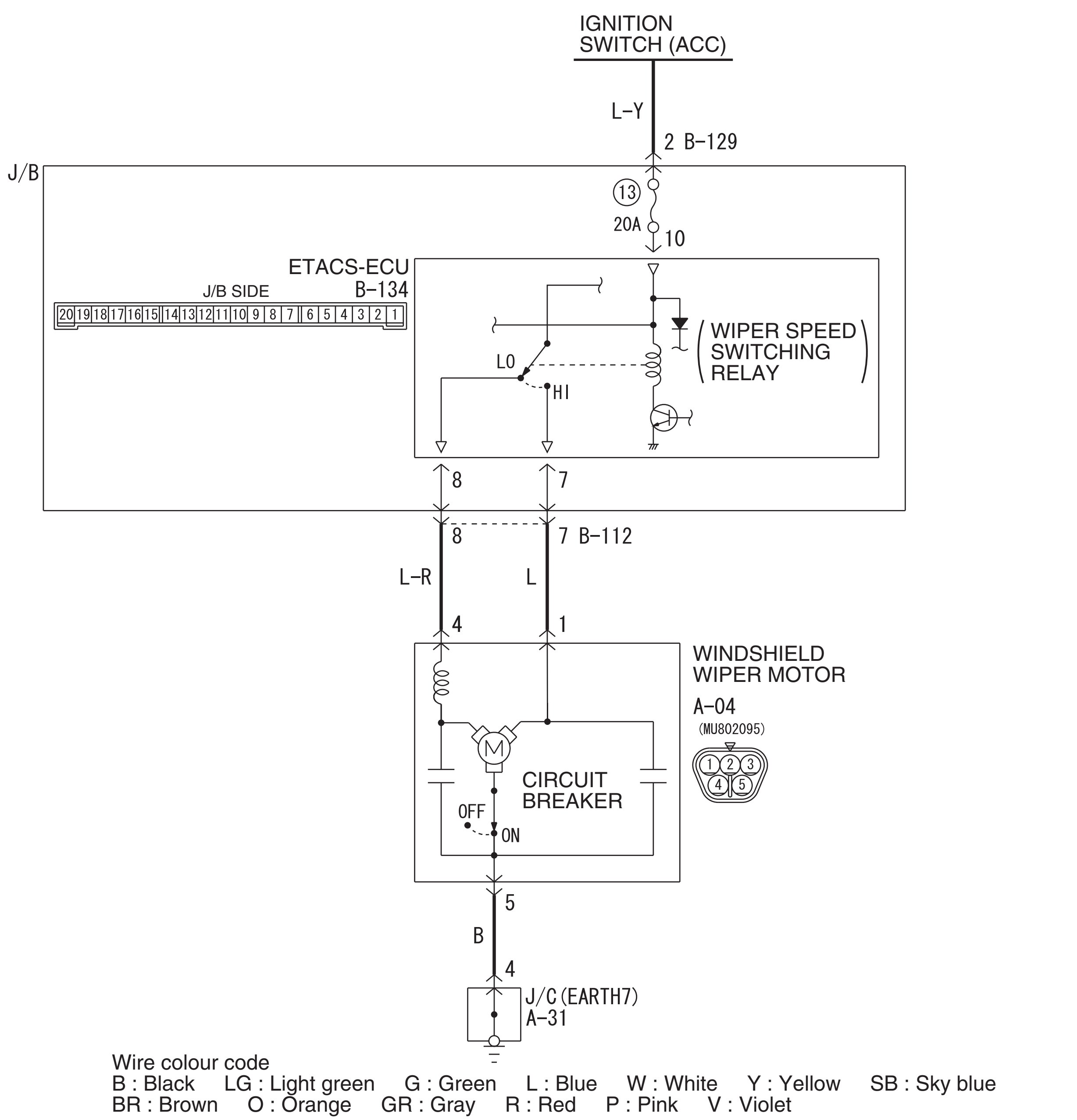
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WINDSHIELD WIPER AND WASHER

INSPECTION PROCEDURE F-1: The windshield wipers does not work at all.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Power Supply Circuit



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COMMENTS ON TROUBLE SYMPTOM

The windshield wiper motor, the column switch or the ETACS-ECU may be defective. If a problem is found in the ECU check by using the SWS monitor, also check the wiper backup circuit (between B-135 column switch connector terminal No.8 and B-133 ETACS-ECU connector terminal No.64) and repair if necessary.

POSSIBLE CAUSES

- Malfunction of the windshield wiper motor
- Malfunction of the column switch (column-ECU)
- Malfunction of the ETACS ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III diagnosis code.

When the ignition switch is turned to the LOCK (OFF) position, check that the ETACS-ECU does not set the diagnosis code.

Q: Is the diagnosis code set?

YES : Refer to diagnosis code chart P.54B-18.
NO : Go to Step 2.

Step 2. Pulse check.

Check the input signals below which are related to the windshield wiper.

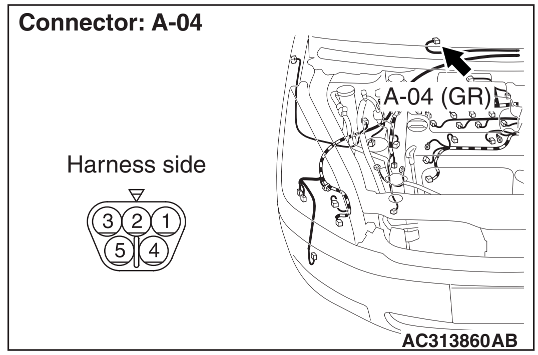
System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield mist wiper switch	When the switch is turned from off to on.

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check results normal?

All the signals are received normally : Go to Step 3.
The ignition switch (ACC) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."
Windshield mist wiper switch signal is not received. : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Step 3. Connector check: A-04 windshield wiper motor connector.



Q: Is the check result normal?

YES : Go to Step 4.
NO : Repair the connector.

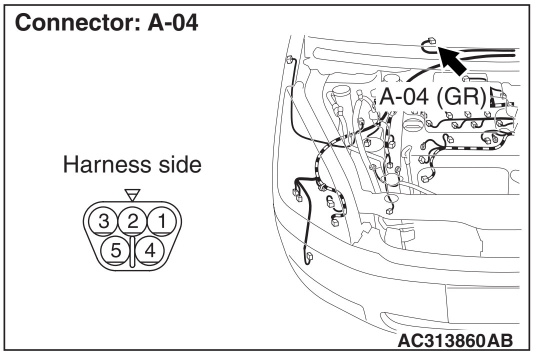
Step 4. Check the windshield wiper motor assembly.

Refer to GROUP 51 – Windshield wiper P.51-31.

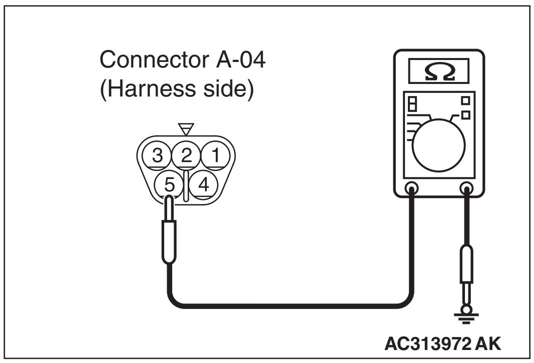
Q: Is the check result normal?

YES : Go to Step 5
NO : Replace the windshield wiper motor assembly.

Step 5. Resistance measurement at the A-04 windshield wiper motor connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Continuity between A-04 windshield wiper motor connector terminal No.5, and body earth

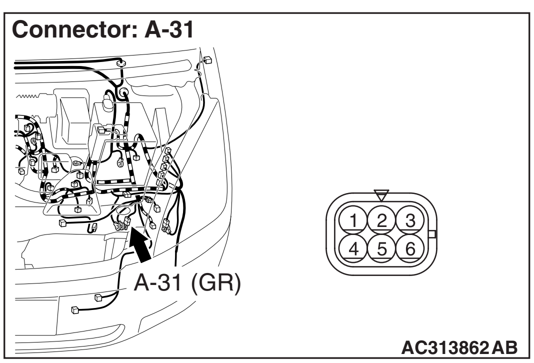
OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 6.

Step 6. Connector check: A-31 earth connector.

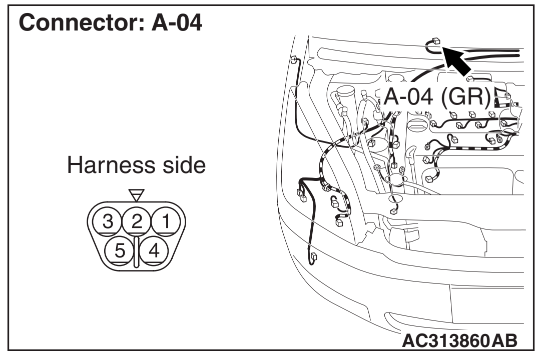


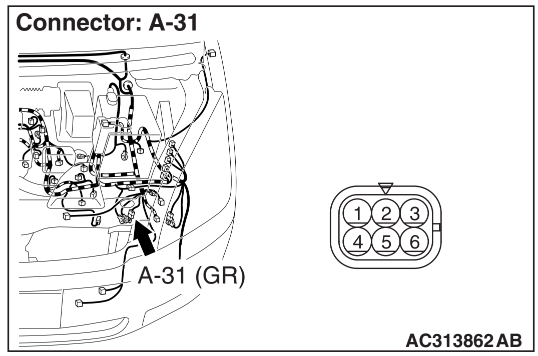
Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector.

Step 7. Check the wiring harness between A-04 windshield wiper motor connector terminal No.5 to A-31 earth connector terminal No.4.





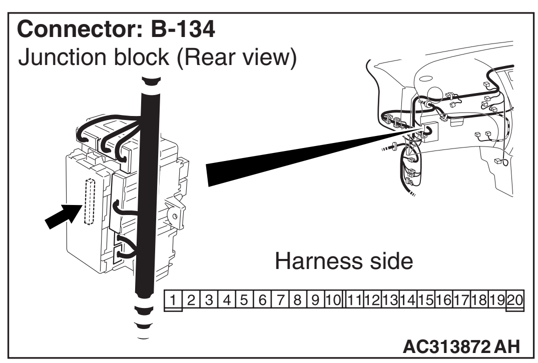
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 8. Connector check: B-134 ETACS-ECU connector.



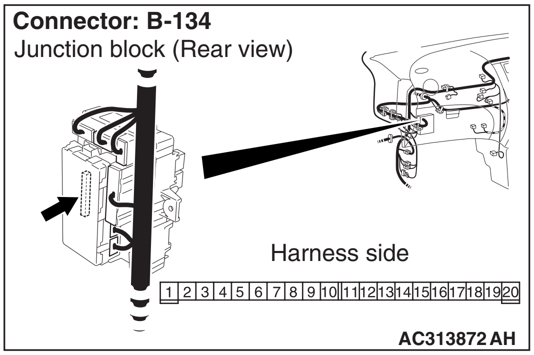
Q: Is the check result normal?

YES : Go to Step 9.

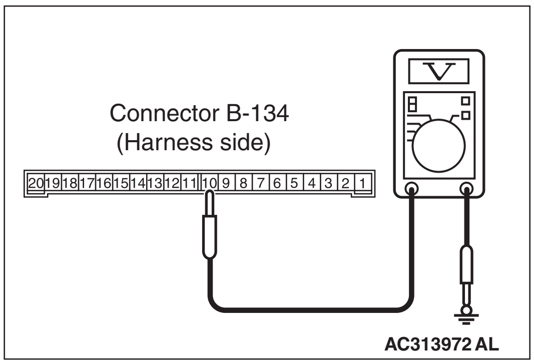
NO : Repair the connector.

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Step 9. Voltage measurement at the B-134 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the relay box side.
(2) Ignition switch: ACC



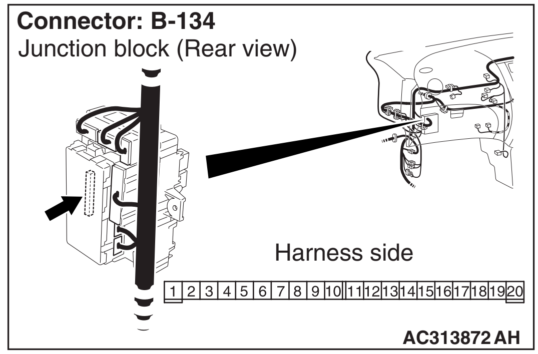
(3) Check the voltage between the B-134 ETACS-ECU connector terminal No.10 and body earth.

OK: System voltage

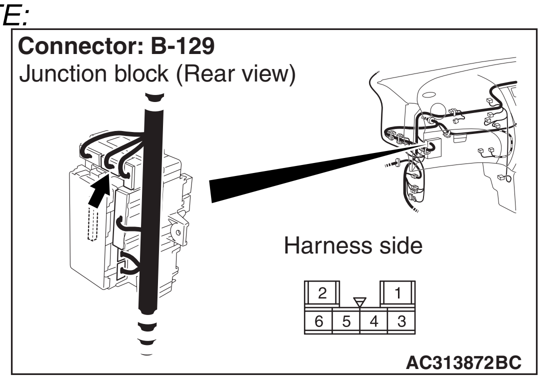
Q: Is the check result normal?

YES : Go to Step 11.
NO : Go to Step 10.

Step 10. Check the wiring harness between B-134 ETACS-ECU connector terminal No.10 to the ignition switch (ACC).



NOTE:



Prior to the wiring harness inspection, check the junction block connectors B-129 and repair if necessary.

- Check the power supply line to the ignition switch (ACC) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

Step 11. Retest the system.

The windshield wiper should now work normally at all.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

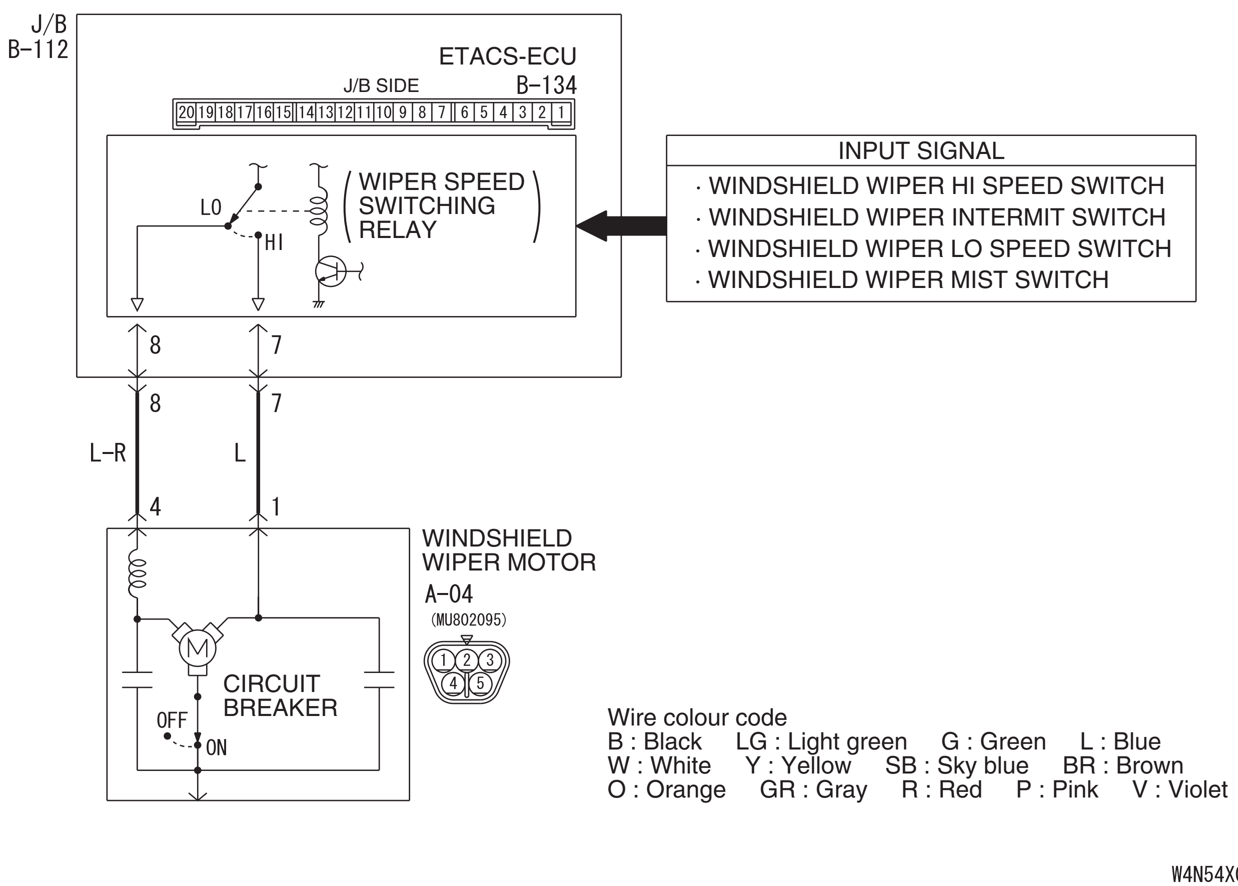
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INSPECTION PROCEDURE F-2: The windshield wipers does not work when the wiper switch is at "INT", "WASHER" or "MIST" position. However, the wipers work at low speed when the switch is at "LO" and "HI" position.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Motor Drive Circuit



COMMENTS ON TROUBLE SYMPTOM

The system may be at fail-safe mode as the SWS communication line is defective. If the ETACS-ECU does not receive the ignition switch (ACC) signal due to an open circuit in the SWS communication lines or other reasons when the ignition switch is at the ACC position, the system will enter the fail-safe mode.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III diagnosis code.

When the ignition switch is turned to the LOCK (OFF) position, check that the ETACS-ECU does not set the diagnosis code.

Q: Is the diagnosis code set?

YES : Refer to diagnosis code chart P.54B-18.

NO : Go to Step 2.

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Step 2. Pulse check.

Check the input signals below which are related to the windshield wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield mist wiper switch	When the switch is turned from off to on.

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally : Go to Step 3.

The ignition switch (ACC) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."

Windshield mist wiper switch signal is not received. : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Step 3. Retest the system.

The windshield wiper should now work normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

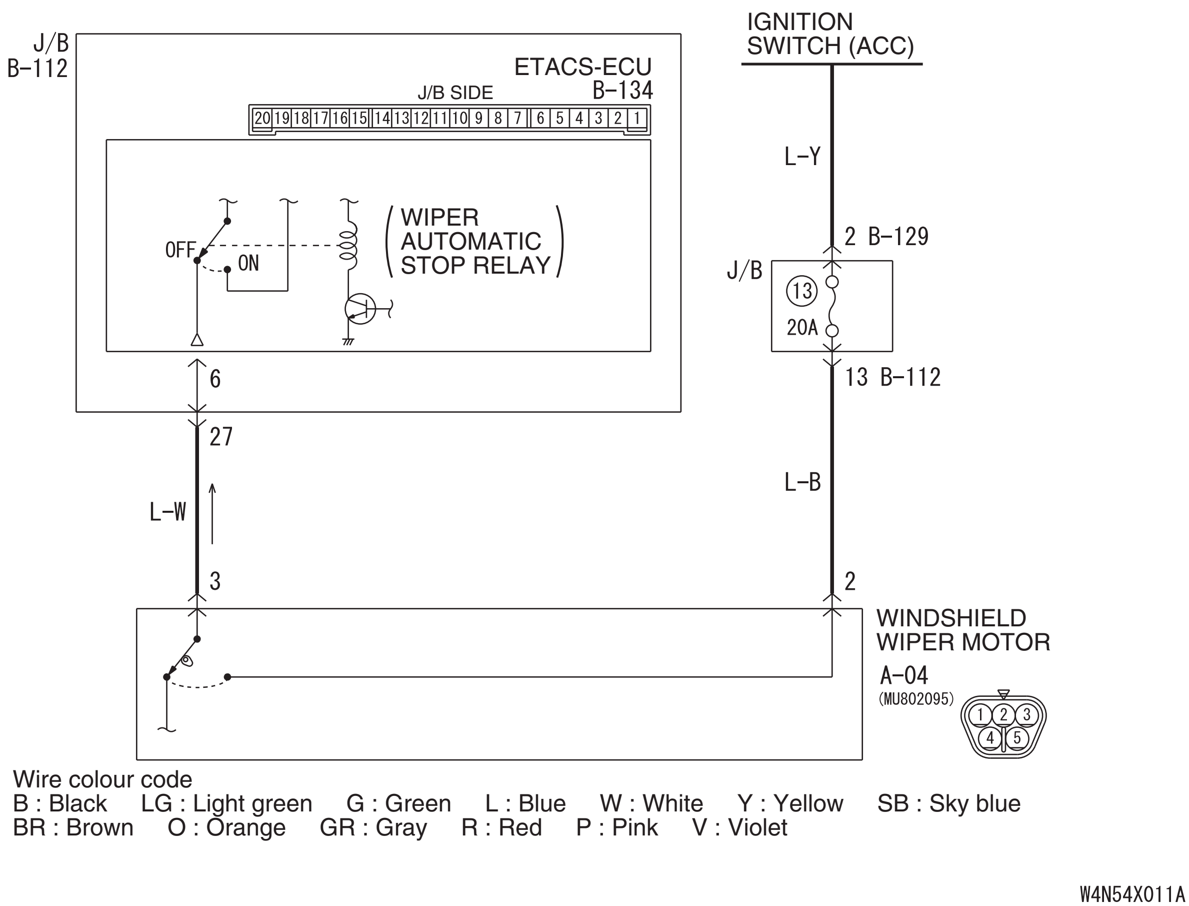
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INSPECTION PROCEDURE F-3: The windshield wipers do not stop at the specified park position.

⚠ **CAUTION**

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Automatic Stop Relay Circuit



COMMENTS ON TROUBLE SYMPTOM

The windshield wiper motor or the ETACS-ECU may be defective.

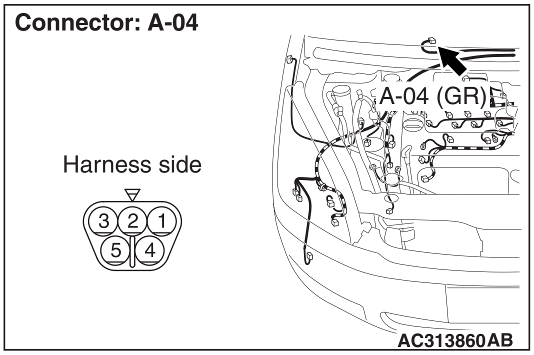
POSSIBLE CAUSES

- Malfunction of the windshield wiper motor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Connector check: A-04 windshield wiper motor connector.



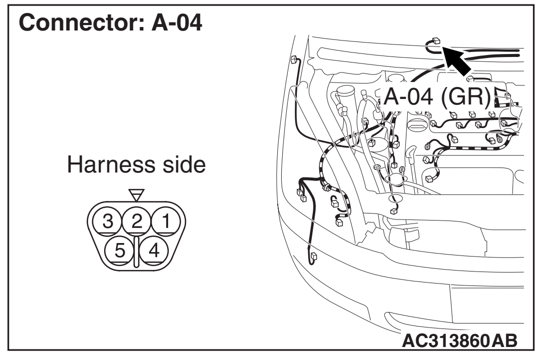
Q: Is the check result normal?
- **YES :** Go to Step 2.
- **NO :** Repair the connector.

Step 2. Check the windshield wiper motor assembly.

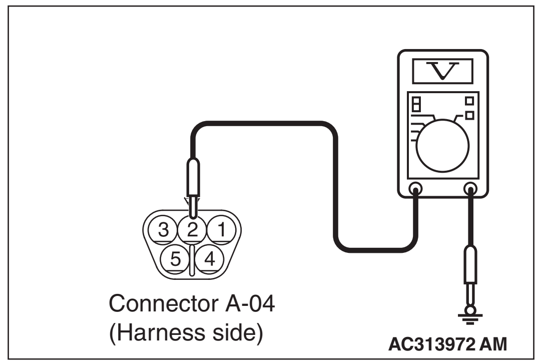
Refer to GROUP 51 – Windshield wiper P.51-31.

Q: Is the check result normal?
- **YES :** Go to Step 3
- **NO :** Replace the windshield wiper motor assembly.

Step 3. Voltage measurement at the A-04 windshield wiper motor connector.



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Ignition switch: ACC



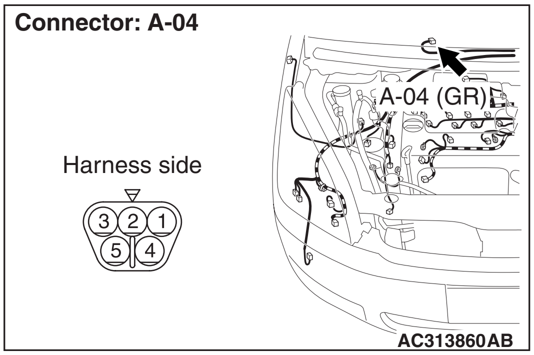
(3) Check the voltage between the A-04 windshield wiper motor connector terminal No.2 and body earth.

OK: System voltage

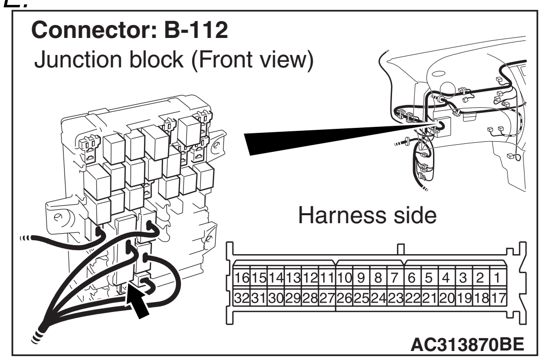
Q: Is the check result normal?
- **YES :** Go to Step 5.
- **NO :** Go to Step 4.

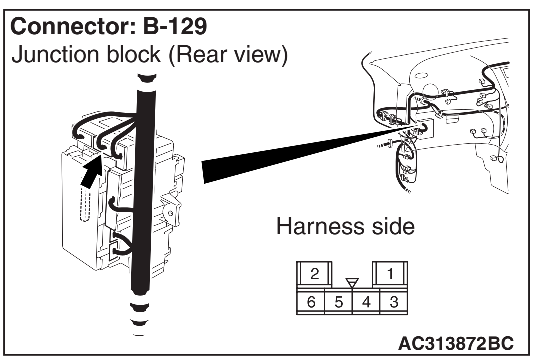
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Step 4. Check the wiring harness between A-04 windshield wiper motor connector terminal No.2 to ignition switch (ACC).



NOTE:





Prior to the wiring harness inspection, check the junction connectors B-112, B-129, and repair if necessary.

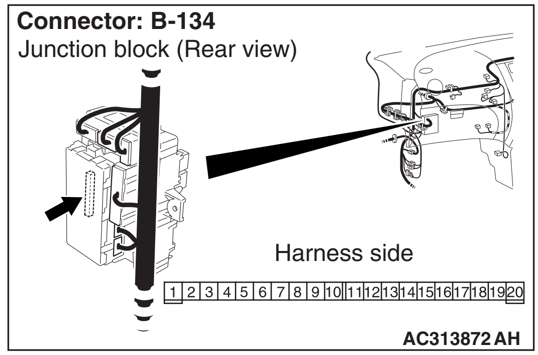
- Check the power supply line to ignition switch (ACC) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 5. Connector check: B-134 ETACS-ECU connector.

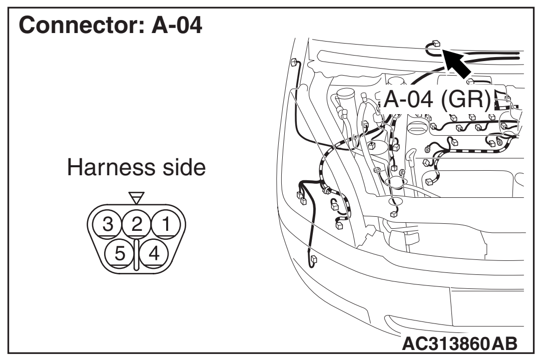


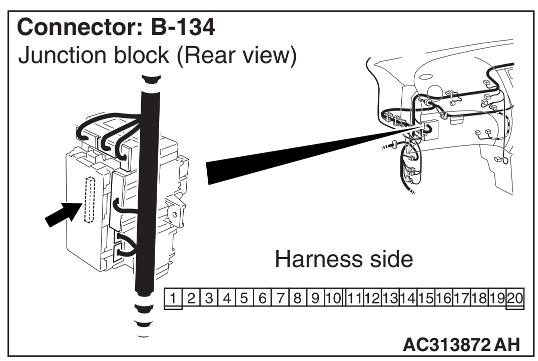
Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

Step 6. Check the wiring harness between A-04 windshield wiper motor connector terminal No.3 to B-134 ETACS-ECU connector terminal No.6.





- Check the input signal lines.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

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Step 7. Retest the system.
Check that the windshield wipers stop at the specified park position.

Q: Is the check result normal?

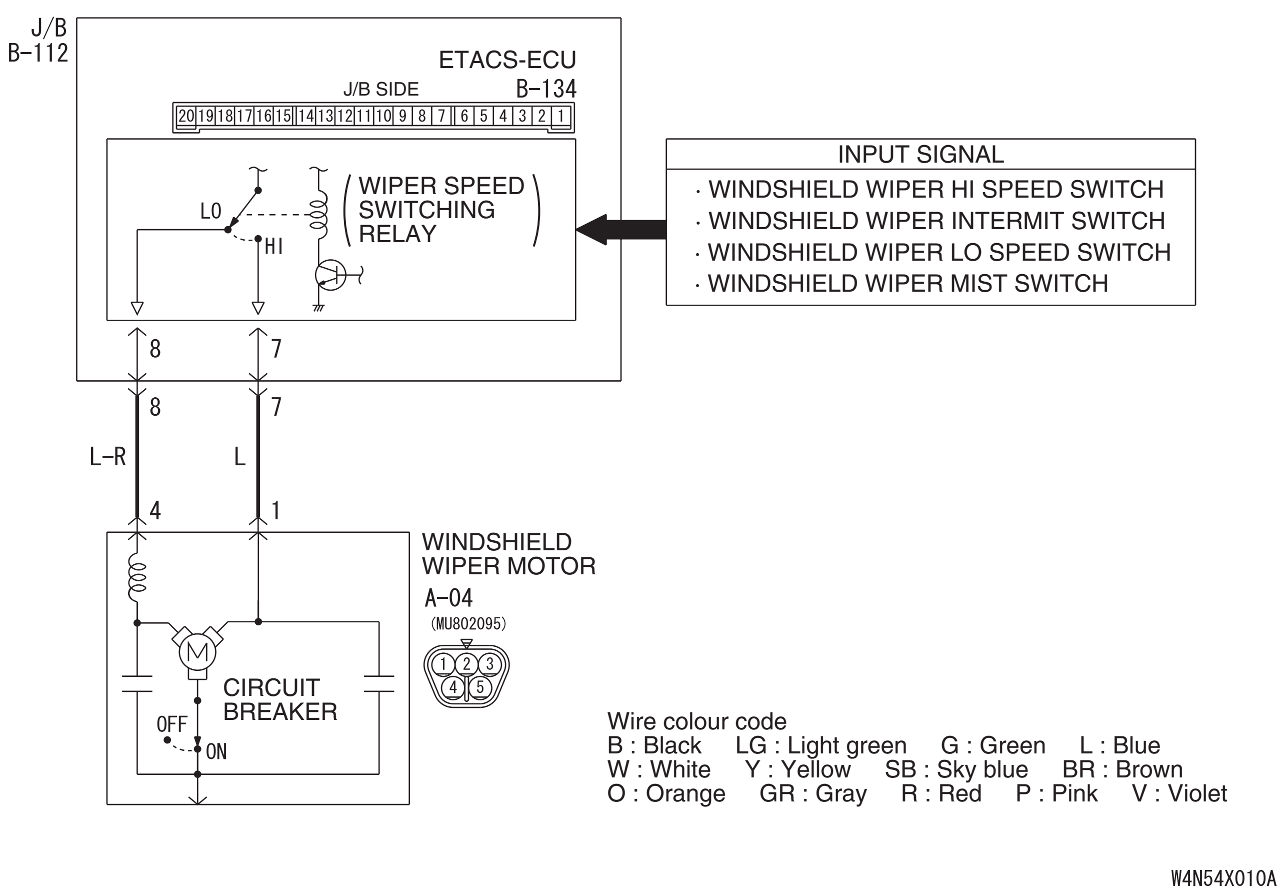
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE F-4: The windshield wipers do not work normally.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Motor Drive Circuit



COMMENTS ON TROUBLE SYMPTOM

The windshield wiper motor, the column switch or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the windshield wiper motor
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Pulse check

Check the input signals below which are related to the windshield wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield mist wiper switch	When the switch is turned from off to on.
Windshield intermittent wiper switch	When the switch is turned from off to on.
Windshield low-speed wiper switch	When the switch is turned from off to on.
Windshield high-speed wiper switch	When the switch is turned from off to on.

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally : Go to Step 2.

The ignition switch (ACC) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."

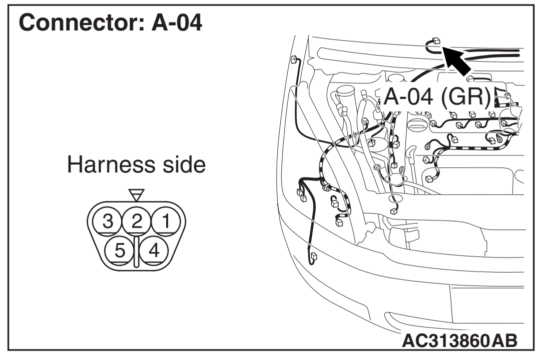
Windshield mist wiper switch signal is not received. : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Windshield intermittent wiper switch signal is not received. : Refer to Inspection Procedure N-6 "The windshield intermittent wiper volume signal is not received P.54B-208."

Windshield low-speed wiper switch signal is not received. : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Windshield high-speed wiper switch signal is not received. : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Step 2. Connector check: A-04 windshield wiper motor connector.



Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Check the windshield wiper motor assembly.

Refer to GROUP 51 – Windshield wiper P.51-31.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the windshield wiper motor assembly.

Step 4. Retest the system.

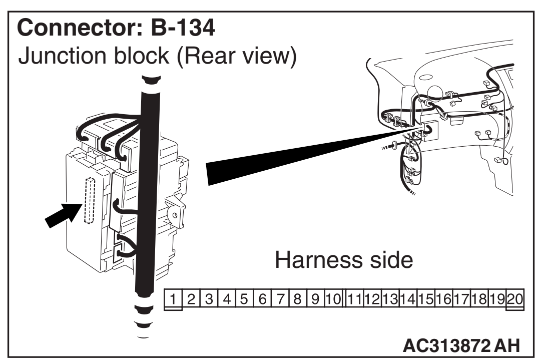
Check that the windshield wipers work normally by moving the switch to HI or MIST position.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 8.

Step 5. Connector check: B-134 ETACS-ECU connector.



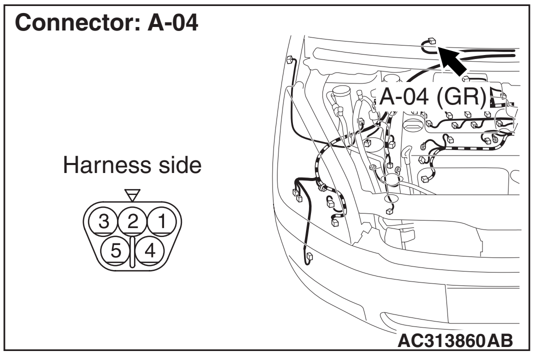
Q: Is the check result normal?

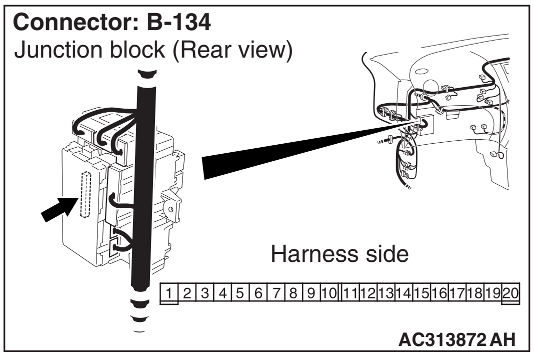
YES : Go to Step 6.

NO : Repair the defective connector.

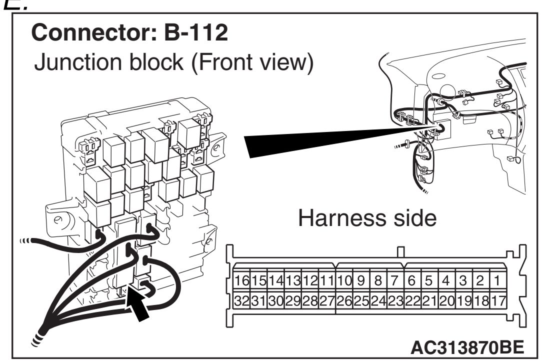
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Step 6. Check the wiring harness between B-134 ETACS-ECU connector terminal No.8 to A-04 windshield wiper motor connector terminal No.4.





NOTE:



Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

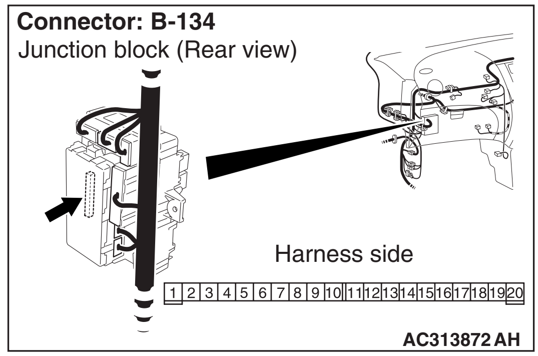
Check that the windshield wipers work normally by moving the switch to each position.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

Step 8. Connector check: B-134 ETACS-ECU connector.



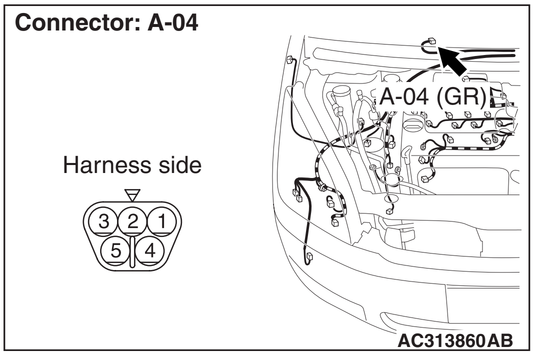
Q: Is the check result normal?

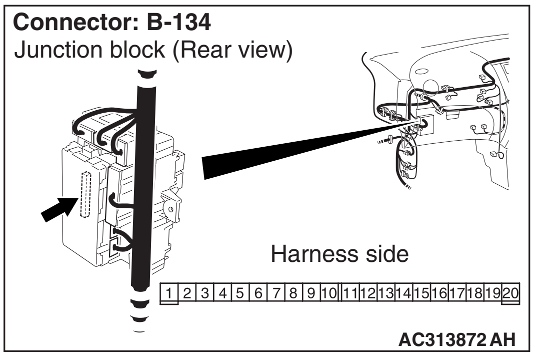
YES : Go to Step 9.

NO : Repair the defective connector.

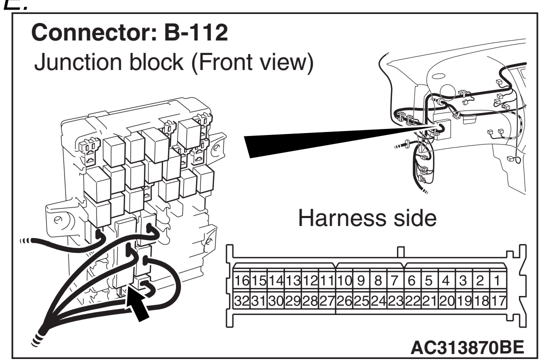
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Step 9. Check the wiring harness between B-134 ETACS-ECU connector terminal No.7 to A-04 windshield wiper motor connector terminal No.1.





NOTE:



Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness.

Step 10. Retest the system.

Check that the windshield wipers work normally by moving the switch to each position.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

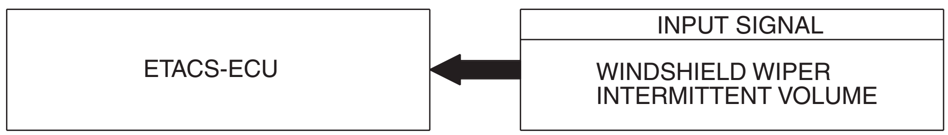
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE F-5: The intermittent wiper interval can not be adjusted by operating the windshield intermittent wiper volume control.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Intermittent Volume Input Signal



W4X54E165A

COMMENTS ON TROUBLE SYMPTOM

The column switch or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Pulse check

Check the input signals below which are related to the windshield intermittent wiper function.

System switch	Check condition
Ignition switch (ACC)	When turned from LOCK (OFF) position to the ACC position
Windshield intermittent wiper volume	When the windshield intermittent wiper volume is rotated from "FAST" to "SLOW" (a pulse is sent around the volume middle position)

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally. : Go to Step 2.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."

The windshield wiper volume signal is not received. : Refer to Inspection Procedure N-6 "The windshield wiper volume signal is not received P.54B-208."

Step 2. Retest the system.

Check that the windshield intermittent wiper interval can be adjusted by operating the windshield intermittent wiper volume control.

OK: The intermittent wiper interval is changed as the intermittent wiper volume is rotated.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

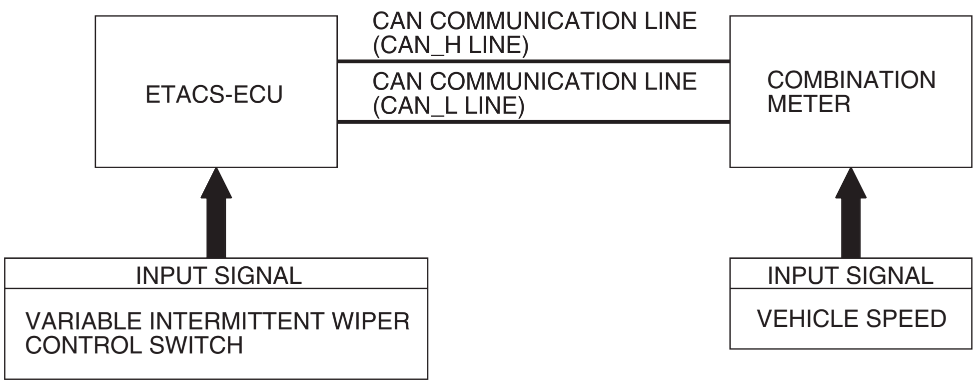
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE F-6: The intermittent wiper interval is not changed according to the vehicle speed.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Variable Intermittent Wiper Control Circuit



COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU calculates the intermittent wiper interval according to the vehicle speed signal which is sent by the engine-CVT-ECU.
If the intermittent wiper interval does not depend on the vehicle speed, the input circuit of the vehicle speed signal and the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the operation by operating the intermittent wiper volume.

Check that the windshield intermittent wiper interval can be adjusted by operating the windshield intermittent wiper volume control.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection Procedure F-5 "The intermittent wiper interval can not be adjusted by operating the windshield intermittent wiper volume control P.54B-104."

Step 2. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54D, Diagnosis P.54D-13).

Step 3. M.U.T.-III other system diagnosis code

Check whether the combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).
NO : Go to Step 4.

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Step 4. Customize function by using the SWS monitor.

Use the SWS monitor customise function to confirm that "SPEED SEN WIP" is set to "W.FUNCTION".

⚠ CAUTION

The SWS monitor must be used in order to confirm and change that setting. Use the SWS monitor to confirm and/or change the customised function.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Use the SWS monitor customise function to set the "SPEED SEN WIP" to "W.FUNCTION" (Refer to GROUP 54C – Customize function P.54C-240).

Step 5. Retest the system.

(1) Replace the ETACS-ECU.

(2) Check that the vehicle speed-dependent intermittent wiper system should work normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

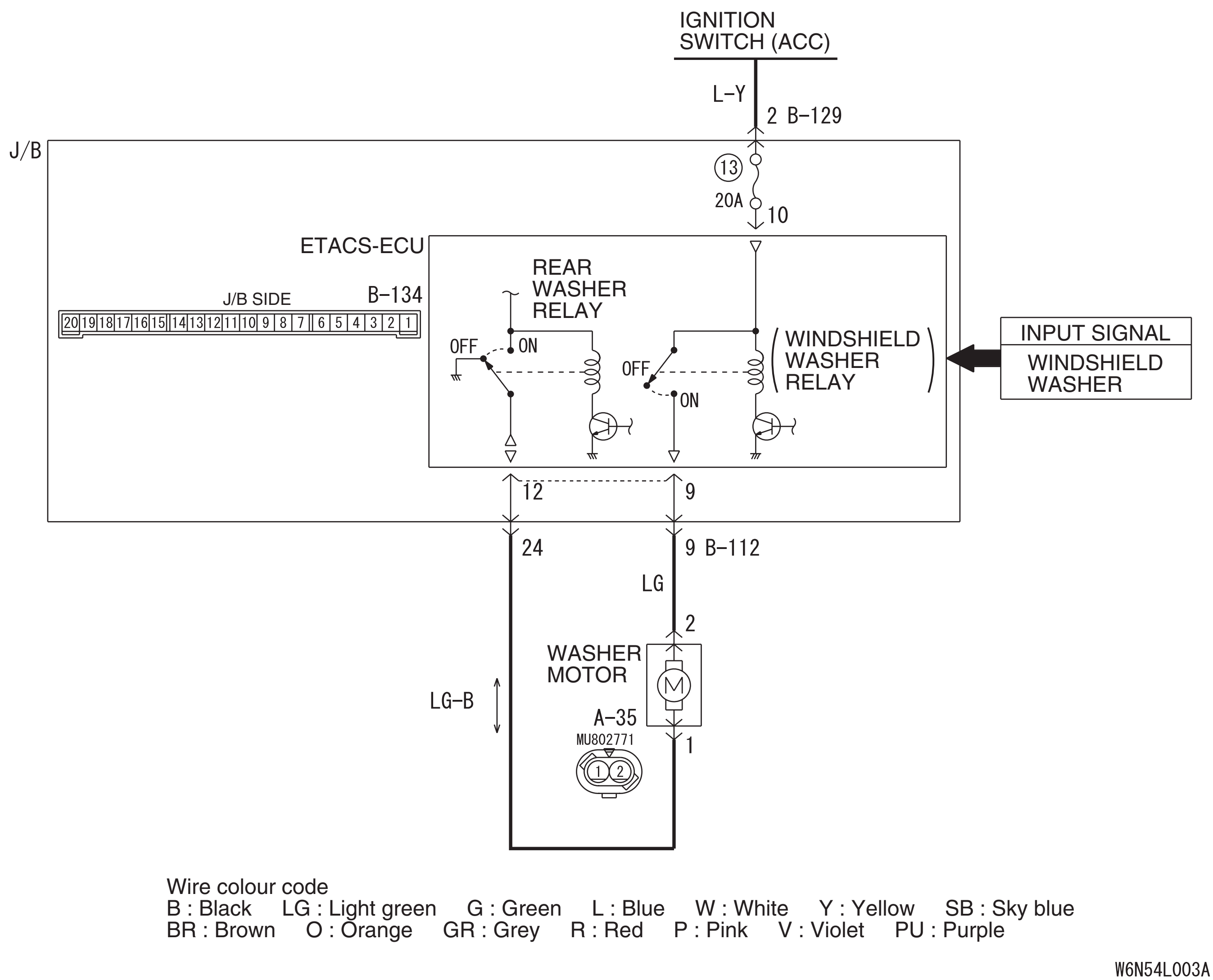
NO : Replace the combination meter.

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INSPECTION PROCEDURE F-7: The windshield washer does not work.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Washer Motor Circuit



COMMENTS ON TROUBLE SYMPTOM

The washer motor, the column switch, the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the washer motor
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the operation of the windshield wiper.

Check that the windshield wiper work normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure F-1 "The windshield wipers does not work at all P.54B-91."

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Step 2. Pulse check

Check the input signals below which are related to the windshield wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield washer switch	When the switch is turned from off to on.

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

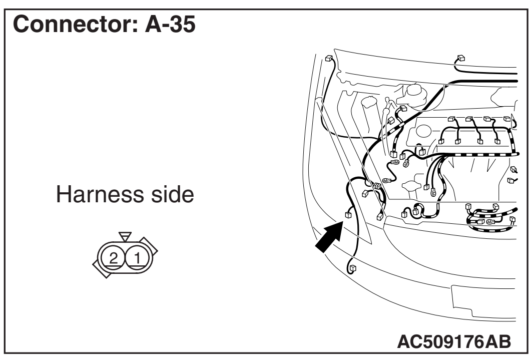
Q: Are the check results normal?

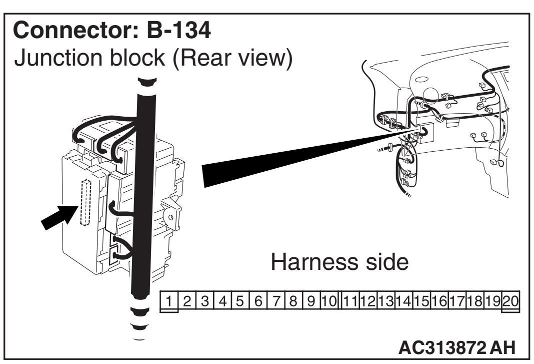
All the signals are received normally : Go to Step 3.

The ignition switch (ACC) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."

Windshield washer switch signal is not received. : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Step 3. Connector check: A-35 motor connector and B-134 ETACS-ECU connector.





Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

Step 4. Check the windshield washer motor assembly.

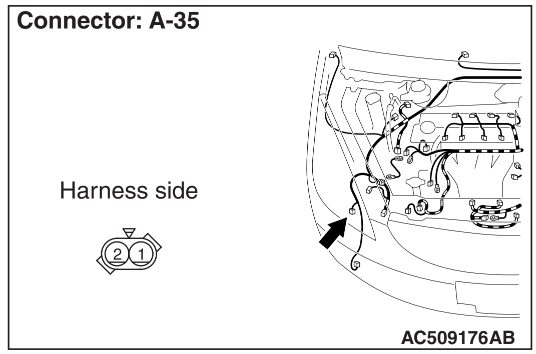
Refer to GROUP 51 – Windshield wiper and washer P.51-28.

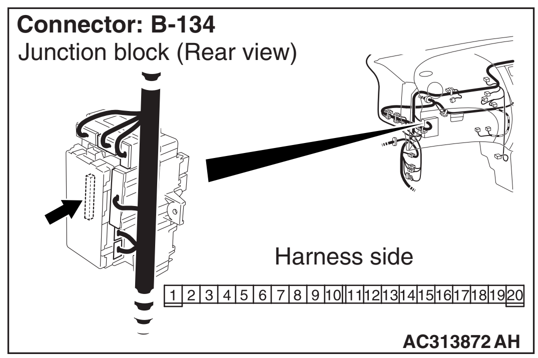
Q: Is the check result normal?

YES : Go to Step 5.

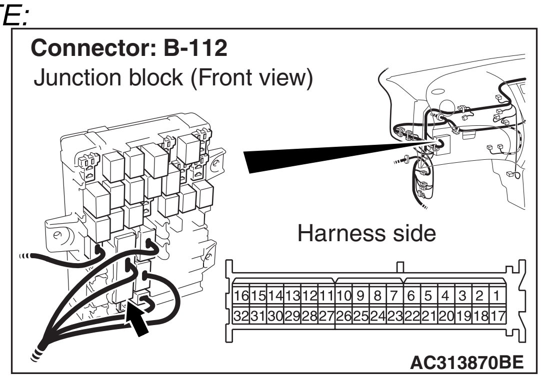
NO : Replace the windshield washer motor.

Step 5. Check the wiring harness between A-35 washer motor connector terminal Nos.1, 2 to B-134 ETACS-ECU connector terminal Nos.12, 9.





NOTE:



Prior to the wiring harness inspection, check the junction block connector B-112 and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness.

Step 6. Retest the system.
Check that the windshield washer works normally.

Q: Is the check result satisfactory?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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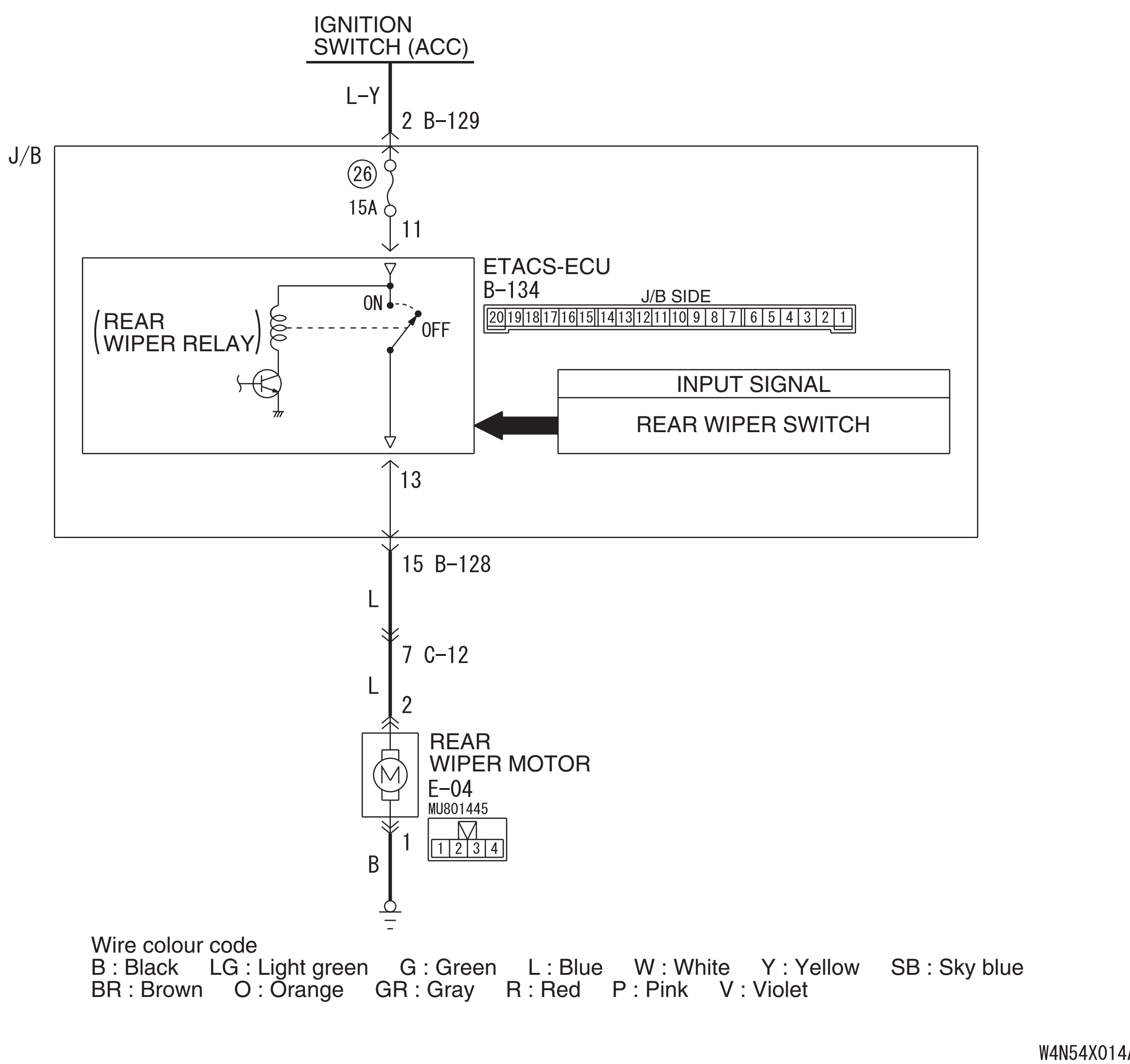
REAR WIPER AND WASHER

INSPECTION PROCEDURE G-1: The rear wiper does not work at all.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Rear Wiper Drive Circuit



COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not work normally, the input signal circuits to the components below, the rear wiper motor or the ETACS-ECU may be defective.

- Ignition switch (ACC)
- Rear wiper switch

POSSIBLE CAUSES

- Malfunction of the rear wiper motor
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III diagnosis code

Check that the ETACS-ECU sets a diagnosis code.

Q: Is diagnosis code set?

YES : Refer to diagnosis code chart P.54B-18.

NO : Go to Step 2.

Step 2. Pulse check

Check the input signals below which are related to the rear wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position
Column switch (rear wiper switch)	When the switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

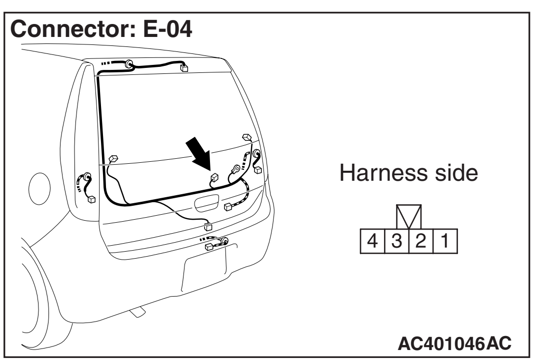
Q: Are the check results normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (ACC) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."

The column switch (rear wiper switch) signal is not received. : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Step 3. Connector check: E-04 rear wiper motor connector.



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

Step 4. Check the rear wiper motor.

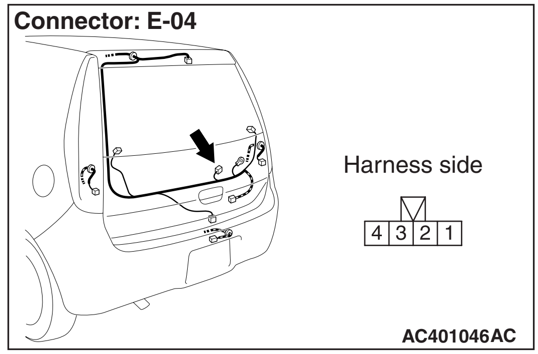
Refer to GROUP 51 – Rear wiper and washer P.51-38.

Q: Is the check result normal?

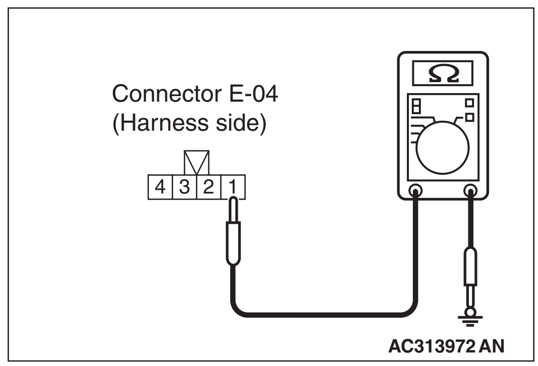
YES : Go to Step 5.

NO : Replace the rear wiper motor.

Step 5. Resistance measurement at the E-04 rear wiper motor connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between E-04 rear wiper motor connector terminal No.1 and body earth

OK: Continuity exists (2 Ω or less)

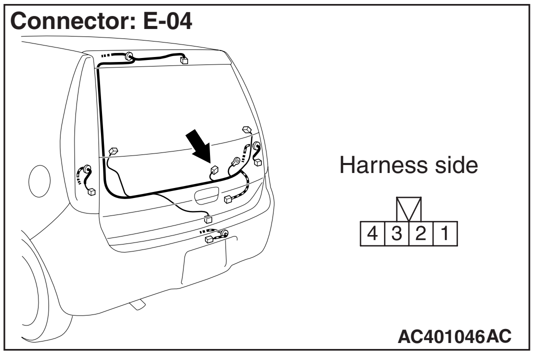
Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

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Step 6. Check the wiring harness between E-04 rear wiper motor connector terminal No.1 to body earth.



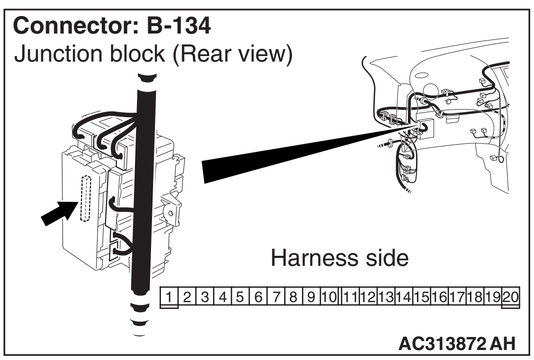
- Check the earth line for open or short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 7. Connector check: B-134 ETACS-ECU connector.

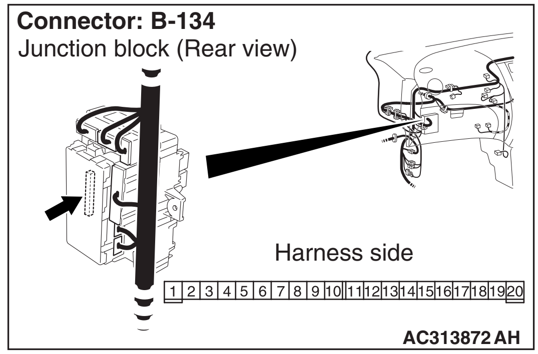


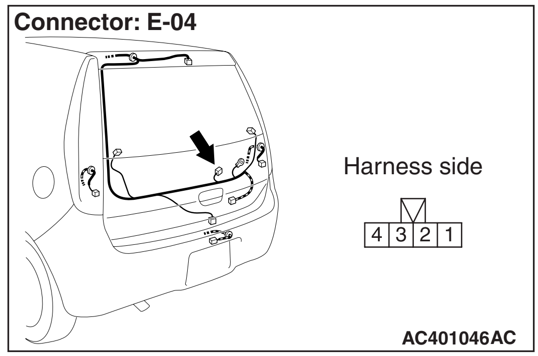
Q: Is the check result normal?

YES : Go to Step 8.

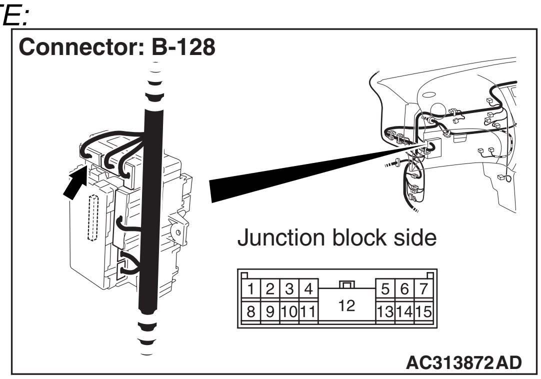
NO : Repair the connector.

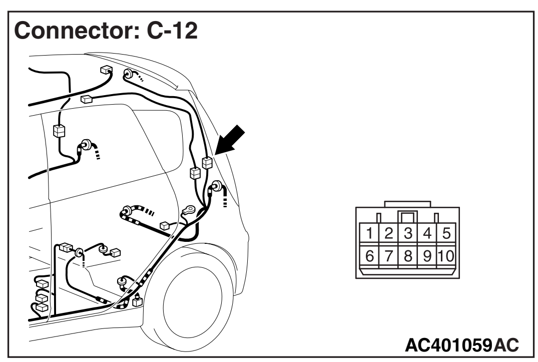
Step 8. Check the wiring harness between B-134 ETACS-ECU connector terminal No.13 to E-04 rear wiper motor connector terminal No.2.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-12 and junction block connectors B-128, and repair if necessary.

- Check the output line.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the wiring harness.

Step 9. Retest the system.

Check that the rear wiper works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

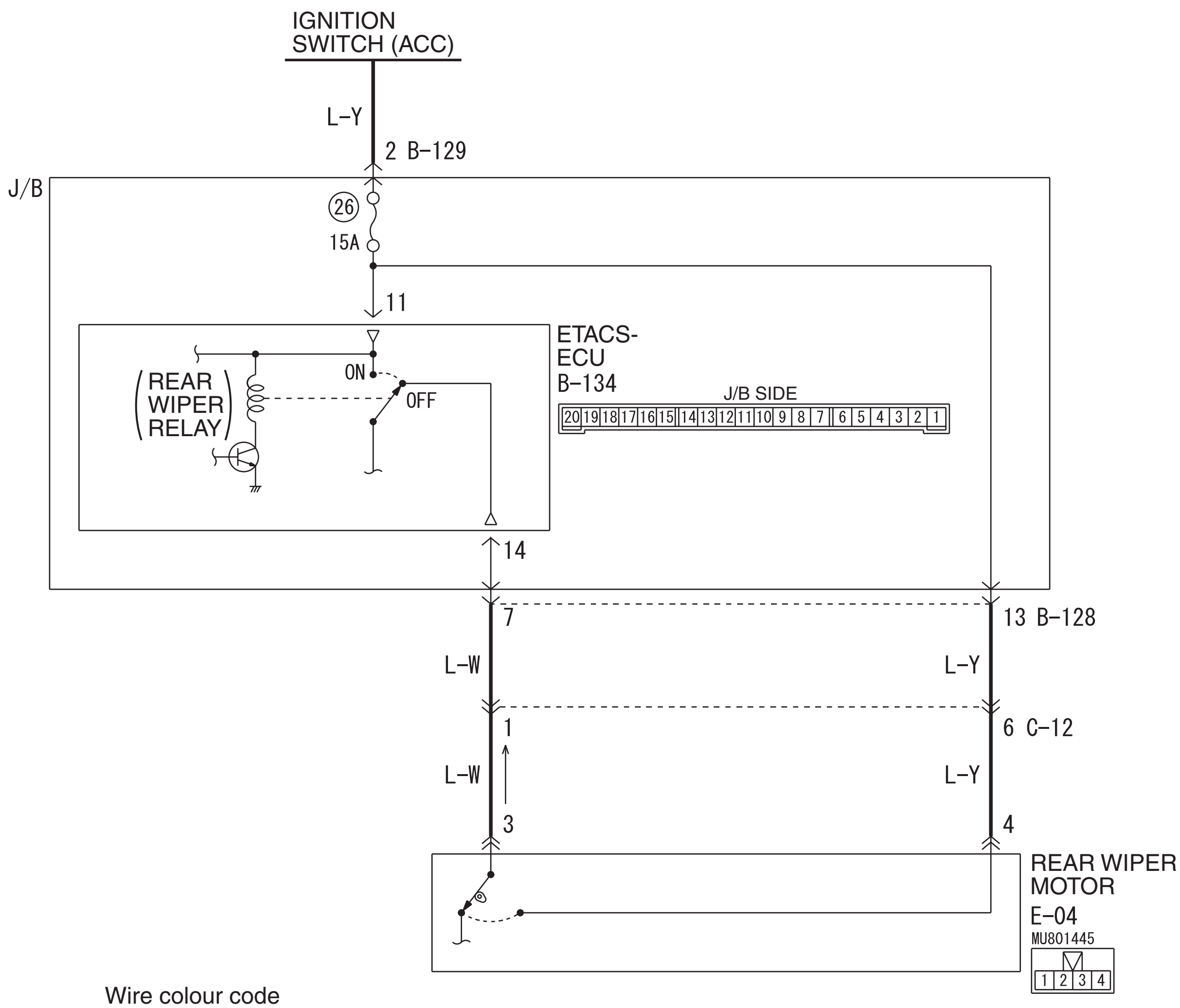
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INSPECTION PROCEDURE G-2: The rear wiper does not stop at the specified park position.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Rear Wiper Auto-Stop Signal Input



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54X015A

COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not stop normally within the predetermined range, the rear wiper motor or the ETACS-ECU may be defective.

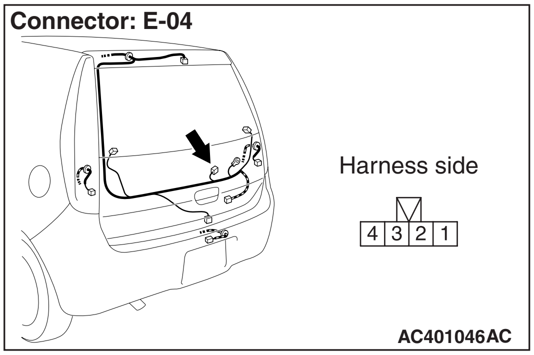
POSSIBLE CAUSES

- Malfunction of the rear wiper motor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Connector check: E-04 rear wiper motor connector.



Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the connector.

Step 2. Check the rear wiper motor.

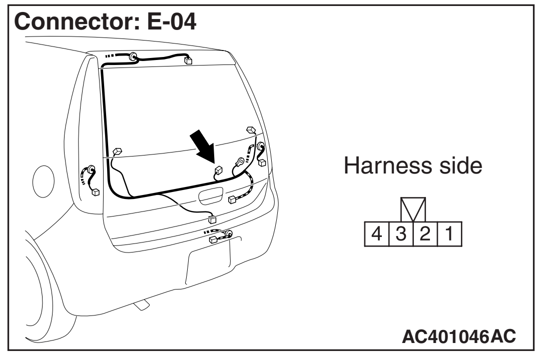
Refer to GROUP 51 – Rear wiper and washer P.51-38.

Q: Is the check result normal?

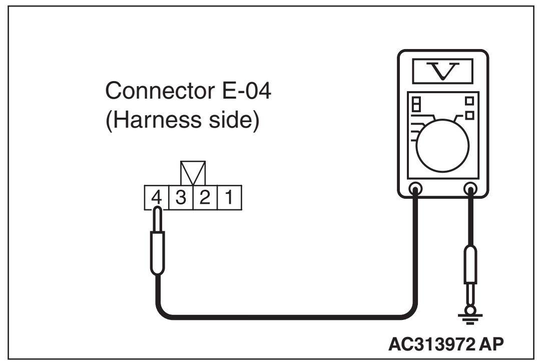
YES : Go to Step 3.

NO : Replace the rear wiper motor.

Step 3. Voltage measurement at the E-04 rear wiper motor connector.



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Ignition switch: ACC



(3) Check the voltage between E-04 rear wiper motor connector terminal No.4 and body earth

OK: System voltage

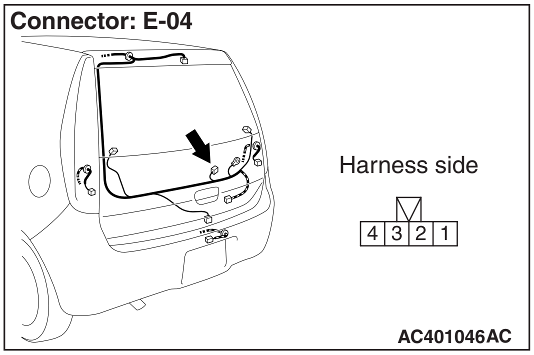
Q: Is the check result normal?

YES : Go to Step 5.

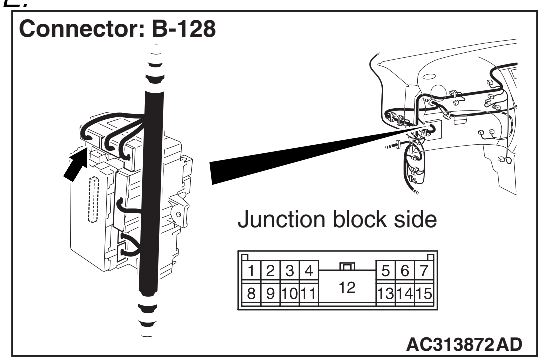
NO : Go to Step 4.

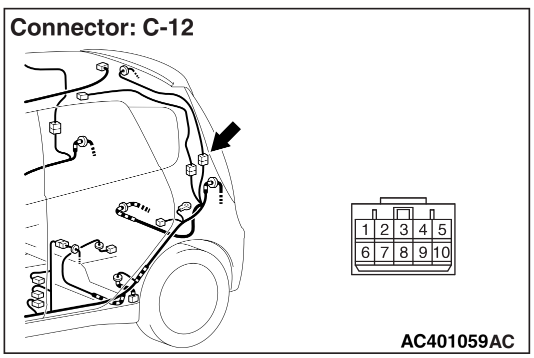
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Step 4. Check the wiring harness between ignition switch (ACC) to E-04 rear wiper motor connector terminal No.4.



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-12 and junction block connectors B-128, and repair if necessary.

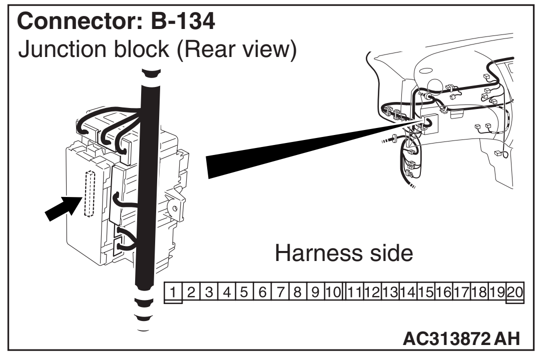
- Check the power supply line for open or short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 5. Connector check: B-134 ETACS-ECU connector.



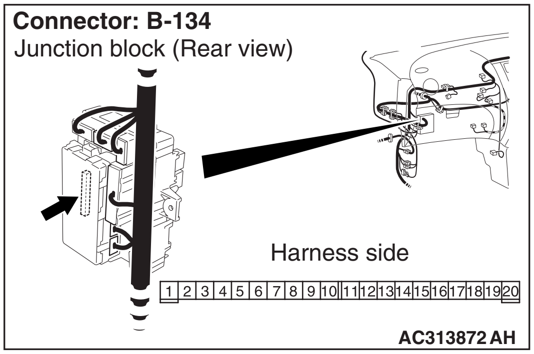
Q: Is the check result normal?

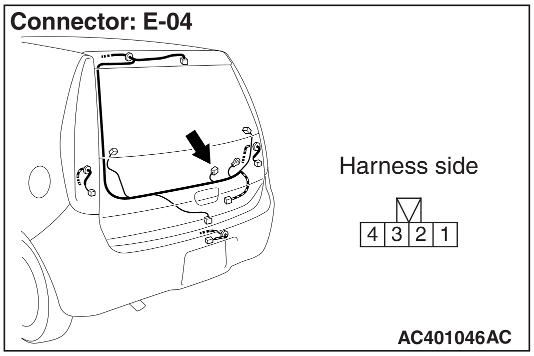
YES : Go to Step 6.

NO : Repair the connector.

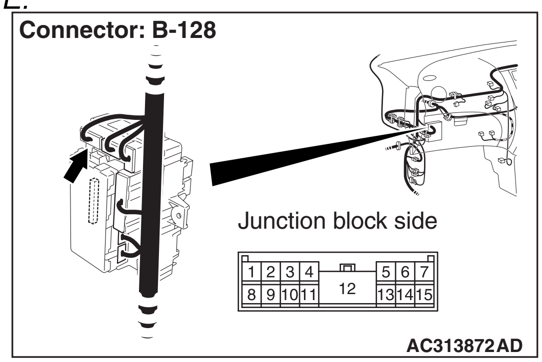
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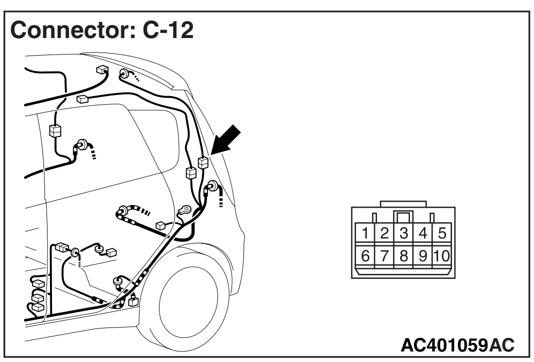
Step 6. Check the wiring harness between B-134 ETACS-ECU connector terminal No.14 to E-04 rear wiper motor connector terminal No.3.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-12, junction block connectors B-128, and repair if necessary.

- Check the power supply line for open or short circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

Check that the rear wiper auto stop function works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

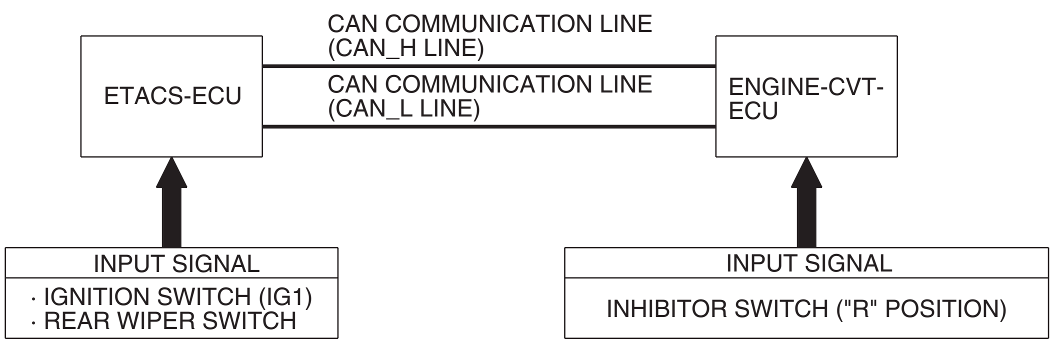
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE G-3: When the selector lever is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode. <CVT>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

"R" Position During Rear Wiper Operation Circuit



W4N54L018A

COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not operate consecutively when the selector lever is moved to the R position during the rear wiper operation, the shift position input signal circuit or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the engine-CVT-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the operation of the rear wiper.

Check that the rear wiper system should work normally by operating the rear wiper switch.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to inspection procedure G-1 "The rear wiper does not work at all P.54B-110."

Step 2. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54D, Diagnosis P.54D-13).

Step 3. M.U.T.-III other system diagnosis code

Check whether the engine-CVT-ECU-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the CVT (Refer to GROUP 23A – Troubleshooting P.23A-14).
NO : Go to Step 4.

Step 4. Retest the system.

Check that the rear wiper operates consecutively when the selector lever is moved to the R position during the rear wiper operation.

Q: Is the check result normal?

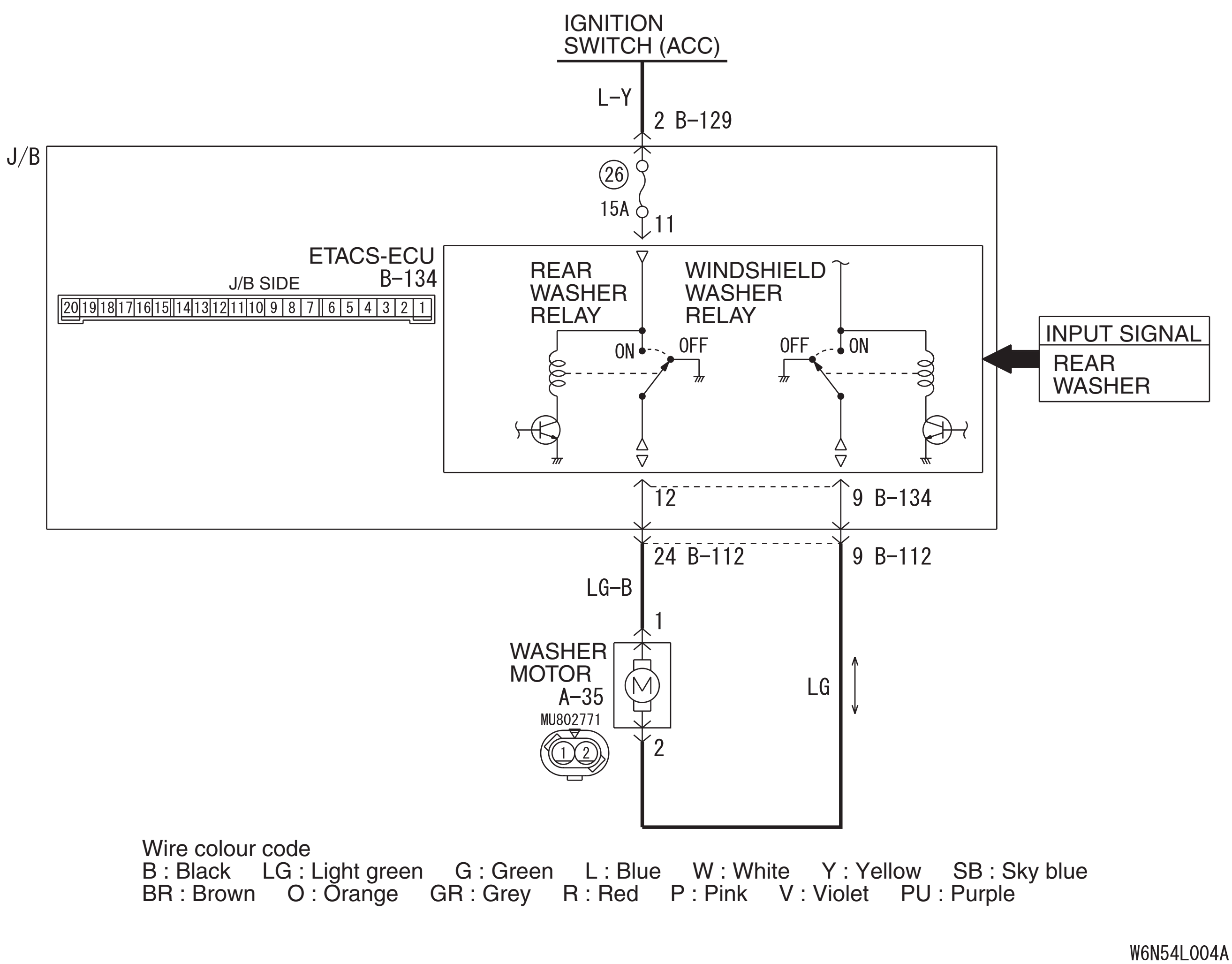
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE G-4: The rear washer does not work.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Rear Washer Motor Circuit



COMMENTS ON TROUBLE SYMPTOM

If the rear washer does not work normally, the input signal circuits to the rear washer switch, washer motor, the column switch, the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the washer motor
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Confirm the operation of the rear wiper.
Check that the rear wiper work normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure G-1 "The rear wiper does not work at all P.54B-110."

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Step 2. Pulse check

Check the input signals below which are related to the rear washer.

- Ignition switch: ACC

System switch	Check condition
Column switch (rear washer switch)	When the switch is turned from off to on

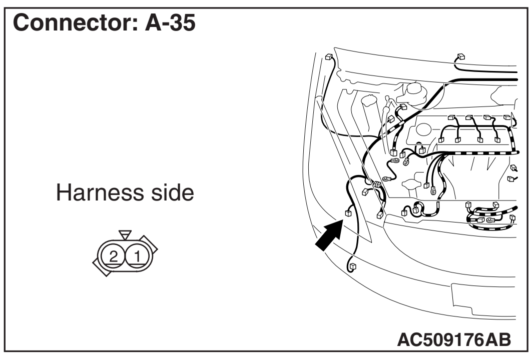
OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

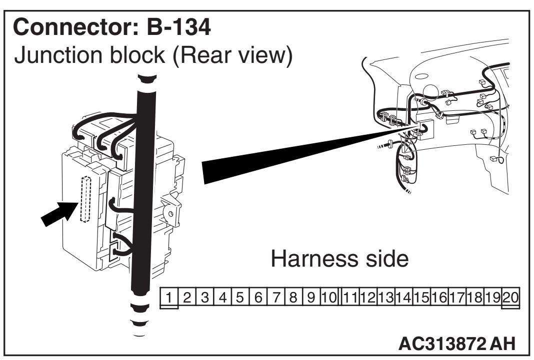
Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure N-5 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54B-207."

Step 3. Connector check: A-35 washer motor connector and B-134 ETACS-ECU connector.





Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

Step 4. Check the washer motor.

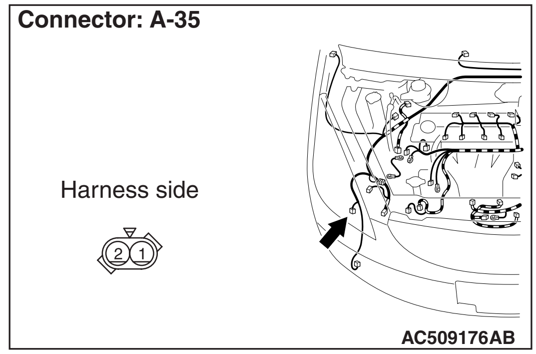
Refer to GROUP 51 – Rear wiper and washer P.51-36.

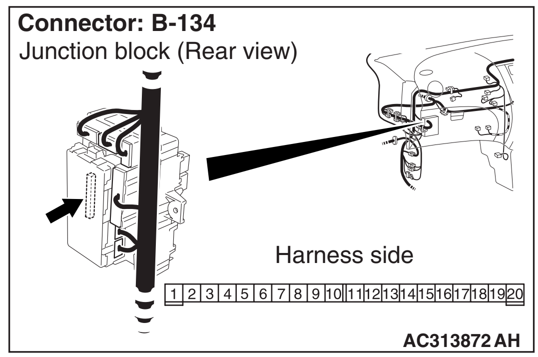
Q: Is the check result normal?

YES : Go to Step 5.

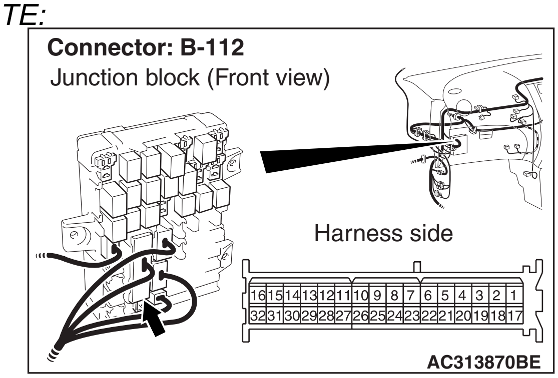
NO : Replace the washer motor.

Step 5. Check the wiring harness between B-134 ETACS-ECU connector terminal Nos.12, 9 to A-35 washer motor connector terminal No.1, 2.





NOTE:



Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

- Check the output signal line.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness.

Step 6. Retest the system.

Check that the rear washer works normally.

Q: Is the check result satisfactory?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

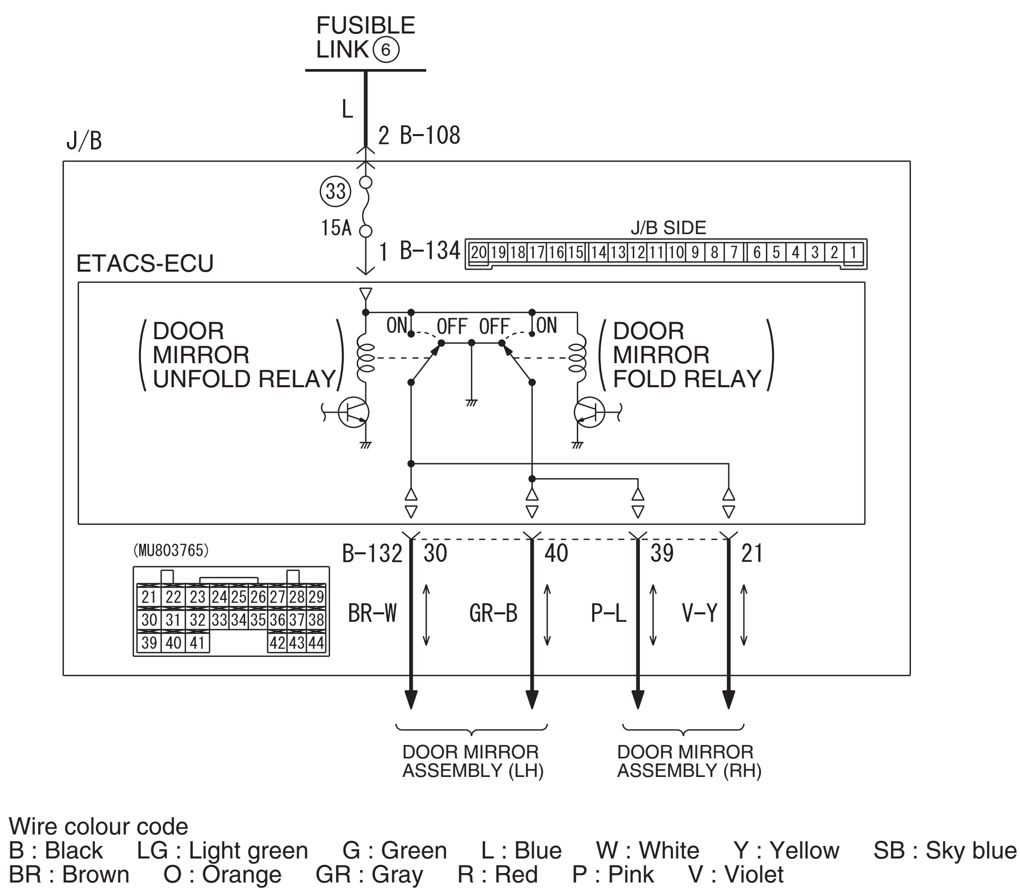
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ELECTRIC RETRACTABLE REMOTE CONTROLLED DOOR MIRROR

INSPECTION PROCEDURE H-1: Electric retractable remote controlled door mirror does not work at all.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Door Mirror Relay Circuit



W4N54X021A

COMMENTS ON TROUBLE SYMPTOM

If the system does not work, the input circuit from the ignition switch (ACC) or the remote controlled mirror switch (folding and unfolding), the door mirror assembly or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the remote controlled mirror switch
- Malfunction of the ignition switch (ACC)
- Malfunction of door mirror assembly
- Malfunction of ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Pulse check

Check the input signals below which are related to the electric retractable remote controlled door mirror.

System switch	Check conditions
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position
Electric remote controlled mirror switch (folding/unfolding switch)	When the switch turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

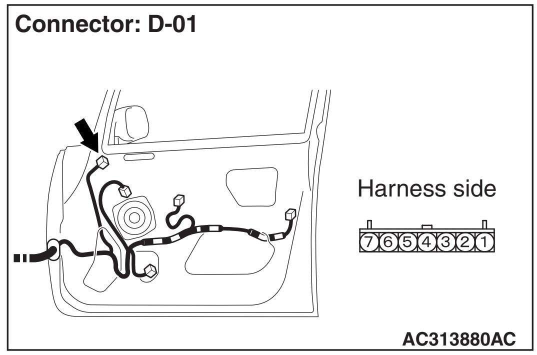
Q: Is the check result normal?

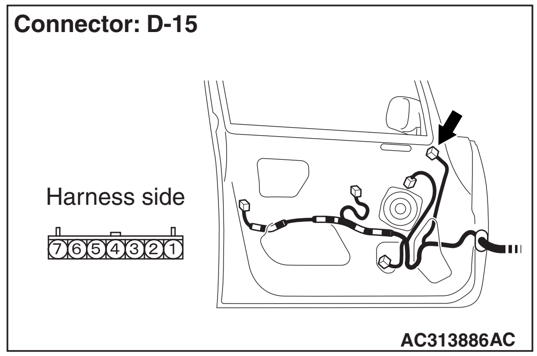
All the signals are received normally. : Go to Step 2.

The ignition switch (ACC) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."

The electric remote controlled mirror switch (folding/unfolding switch) signal is not received. : Refer to Inspection Procedure N-8 "Signal is not received from the electric remote controlled mirror switch (folding/unfolding switch) P.54B-213."

Step 2. Connectors check D-01 door mirror assembly (RH) connector and D-15 door mirror assembly (LH) connector





Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

Step 3. Check the door mirror assemblies.

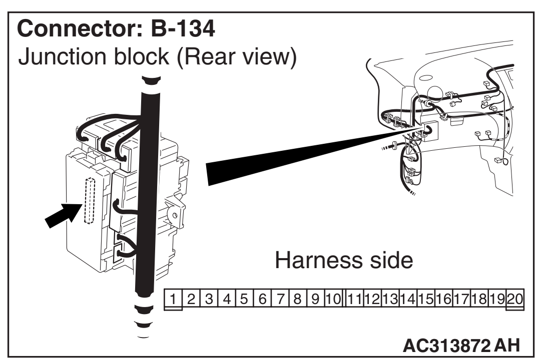
Check whether the door mirror assemblies work normally (Refer to GROUP 51 – Door Mirror P.51-43).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the door mirror assemblies.

Step 4. Connector check: B-134 ETACS-ECU connector



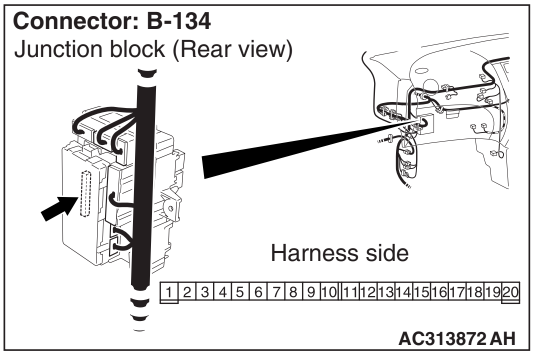
Q: Is the check result normal?

YES : Go to Step 5.

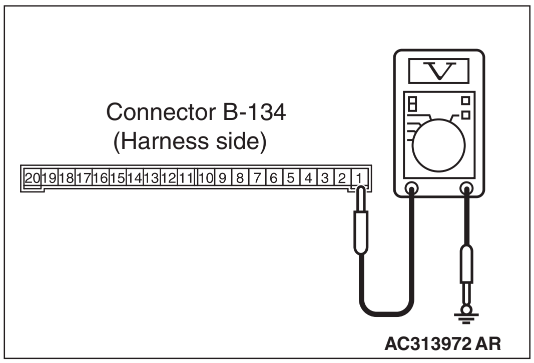
NO : Repair the connector.

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Step 5. Voltage measurement at the B-134 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.



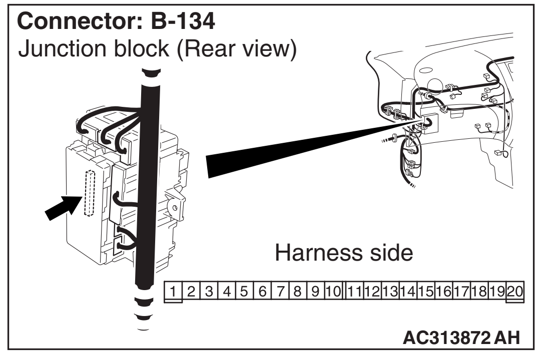
(2) Check the voltage between the B-134 ETACS-ECU connector terminal No.1 and body earth.

OK: System voltage

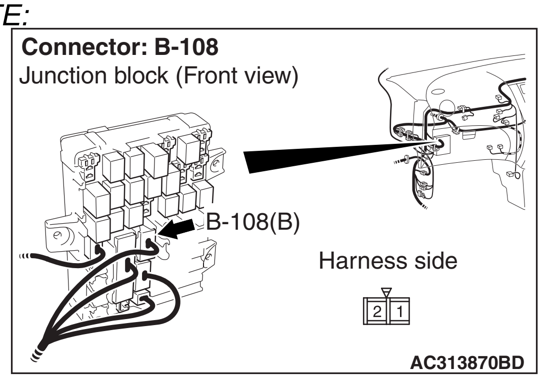
Q: Is the check result normal?

YES : Go to Step 7.
NO : Go to Step 6.

Step 6. Check the wiring harness between B-134 ETACS-ECU connector terminal No.1 to the fusible link (6)



NOTE:



Prior to the wiring harness inspection, check junction block connector B-108, and repair if necessary.

- Check the power supply line to the battery for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

Step 7. Retest the system

Check that the electric retractable remote controlled mirror works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE H-2: Electric retractable remote controlled door mirror timer function does not at all.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the door mirror can be folded and unfolded with the remote controlled mirror switch (fold/unfold switch), the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU

DIAGNOSTIC PROCEDURE

Step 1. Check the electric folding door mirrors operation.

Check that the door mirror is folded and unfolded with the remote controlled mirror switch when the ignition switch is at ACC position.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure H-1 "The electric retractable remote controlled door mirrors does not work at all P.54B-121."

Step 2. Pulse check

Check the input signals below which are related to the electric retractable remote controlled door mirror timer function.

System switch	Check conditions
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position
Driver's door switch	When the driver's door is opened

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (ACC) signal is not received. : Refer to Inspection Procedure N-1 "The ignition switch (ACC) signal is not received P.54B-200."

The driver's door switch signal is not received. : Refer to Inspection Procedure N-3 "The driver's door switch signal is not received P.54B-204."

Step 3. Retest the system.

Check that the electric-folding door mirror timer function works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE H-3: Vehicle speed-dependent unfolding function does not work normally.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If this function does not work normally, the input signal circuit(s) below or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Defective vehicle speed signal
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54D – Diagnosis P.54D-13).

Step 2. M.U.T.-III other system diagnosis code

Check whether the combination meter-related diagnosis code is set.

Q: Is the check result normal?

YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).

NO : Go to Step 3.

Step 3. Retest the system.

Check that the vehicle speed-dependent unfolding function of the door mirrors works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE H-4: Keyless entry system-linked fold/unfold function does not work normally.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If this function does not work normally, keyless entry transmitter input signal circuit or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Defective keyless entry transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the keyless entry operation.

Check that the keyless entry system works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure E-1 "Keyless entry system does not work P.54B-84."

Step 2. Retest the system.

Check that the keyless entry interlock fold/unfold function for the door mirrors works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

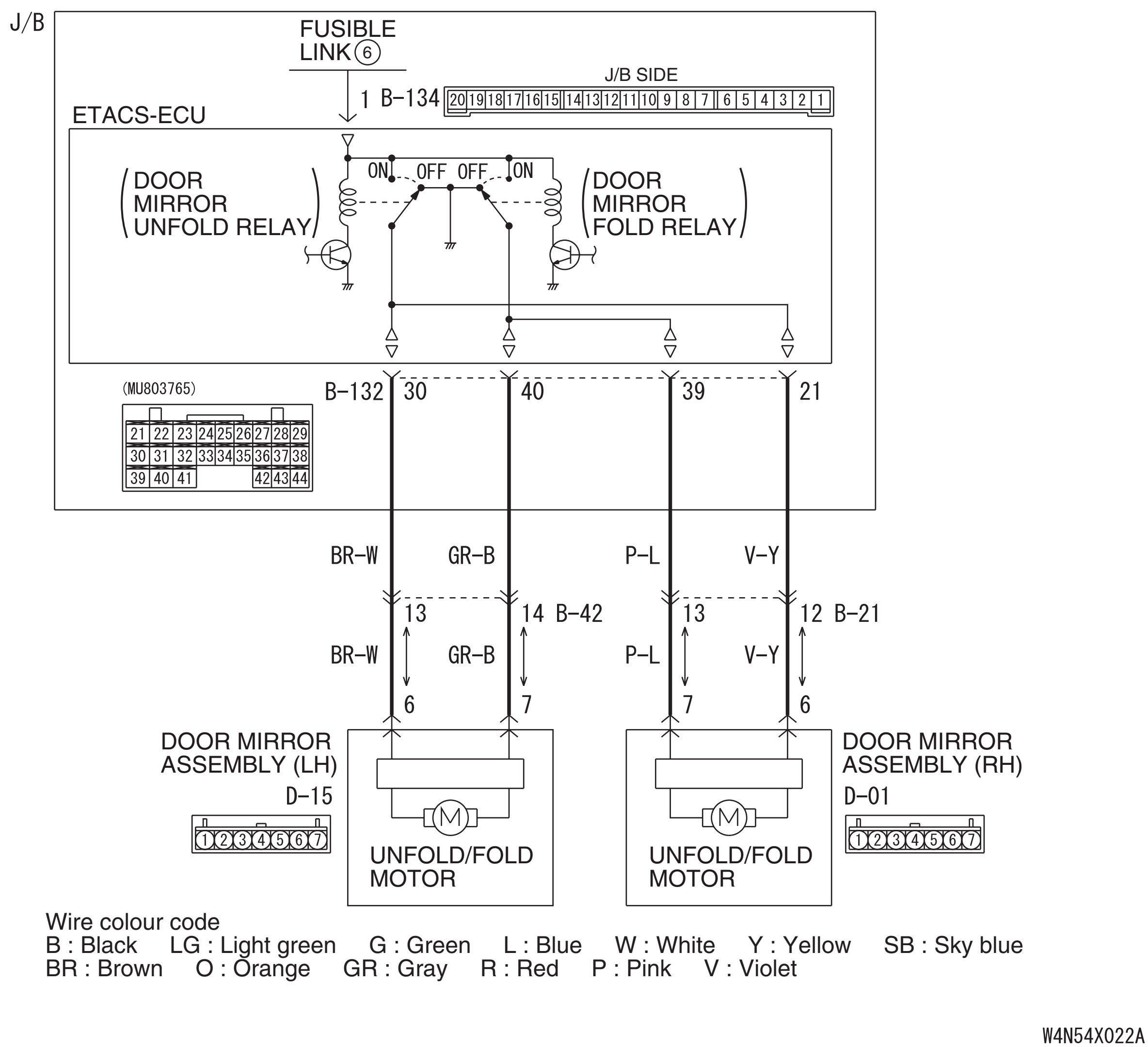
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE H-5: Left or right side electric retractable remote controlled door mirror does not work at all.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Electric Retractable Remote Controlled Mirror Circuit



COMMENTS ON TROUBLE SYMPTOM

If left or right side electric retractable remote controlled door mirror does not work at all, door mirror assembly may be defective.

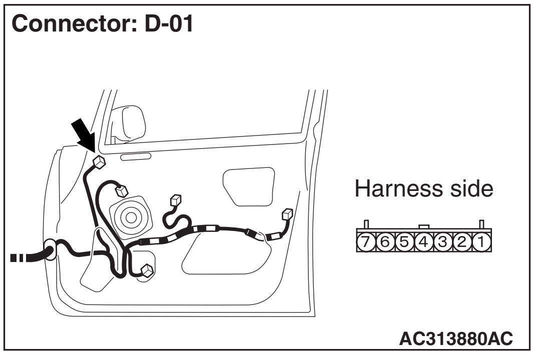
POSSIBLE CAUSES

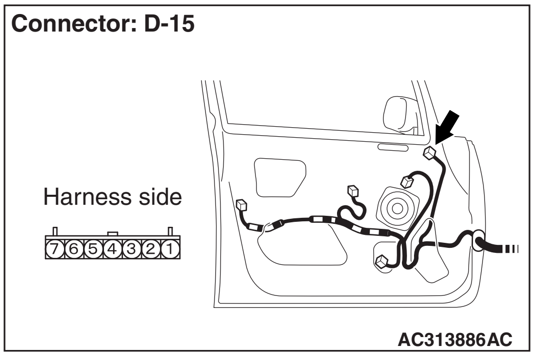
- Malfunction of the door mirror assembly
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Connectors check D-01 door mirror assembly (RH) connector and D-15 door mirror assembly (LH) connector





Q: Is the check result normal?
- **YES :** Go to Step 2.
- **NO :** Repair the connector.

Step 2. Check the door mirror assembly

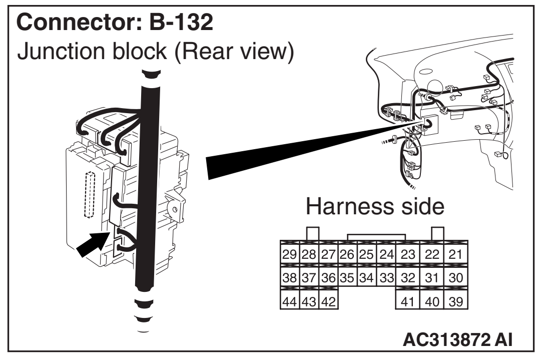
Check whether the door mirror assembly has returned to normal operation (Refer to GROUP 51 – Door Mirror P.51-43).

Q: Is the check result normal?
- **YES :** Go to Step 3.
- **NO :** Replace the door assembly.

Step 3. Confirm which door mirror is defective

Q: Confirm which door mirror is defective.
- **LH :** Go to Step 4.
- **RH :** Go to Step 7.

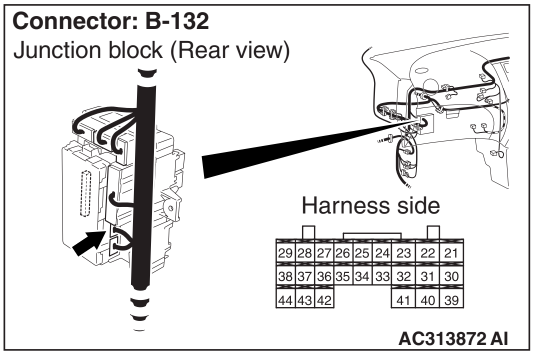
Step 4. Connectors check: B-132 ETACS-ECU connector

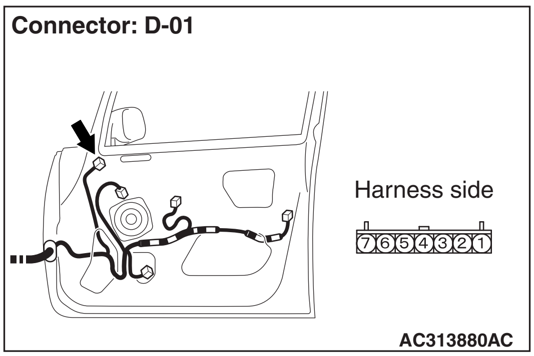


Q: Is the check result normal?
- **YES :** Go to Step 5.
- **NO :** Repair the connector.

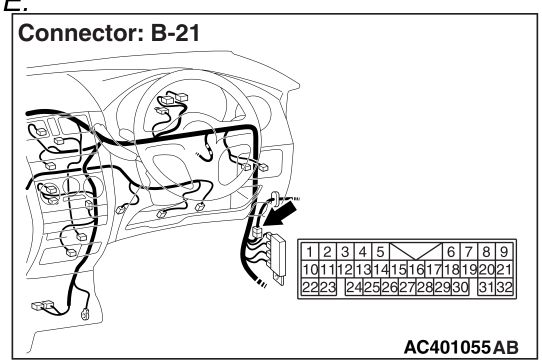
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Step 5. Check the wiring harness between D-01 door mirror assembly (RH) connector terminal No.6 to B-132 ETACS-ECU connector terminal No.21





NOTE:

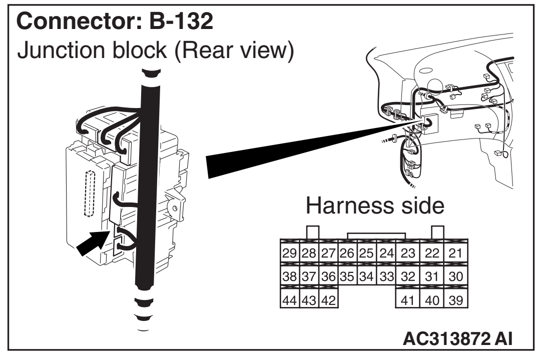


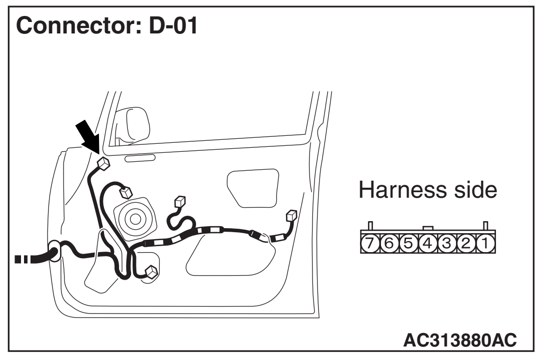
Prior to the wiring harness inspection, check intermediate connector B-21, and repair if necessary.

- Check the input and output signal line for open circuit.

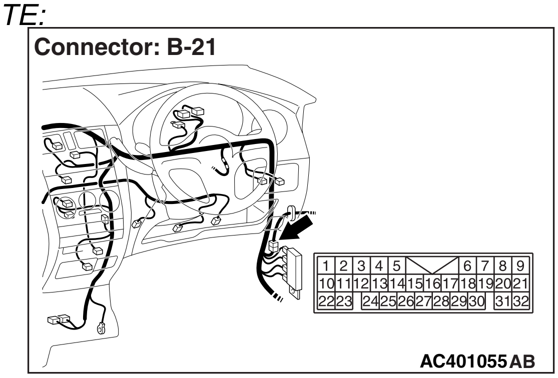
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the wiring harness.

Step 6. Check the wiring harness between D-01 door mirror assembly (RH) connector terminal No.7 to B-132 ETACS-ECU connector terminal No.39





NOTE:



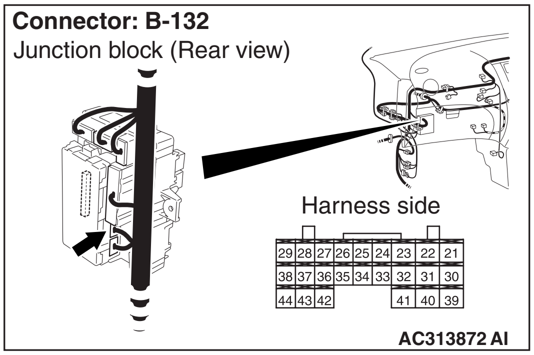
Prior to the wiring harness inspection, check intermediate connector B-21, and repair if necessary.

- Check the input and output signal line for open circuit.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

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Step 7. Connector check: B-132 ETACS-ECU connector

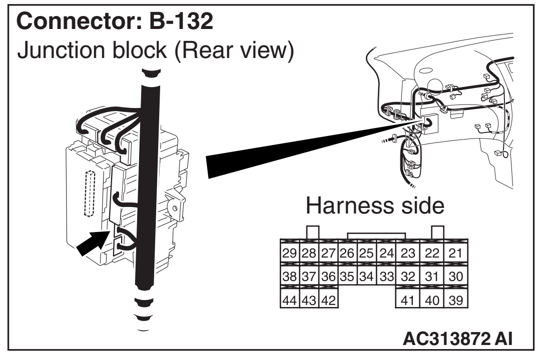


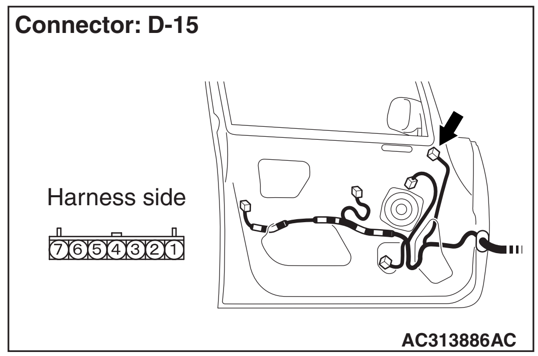
Q: Is the check result normal?

YES : Go to Step 8.

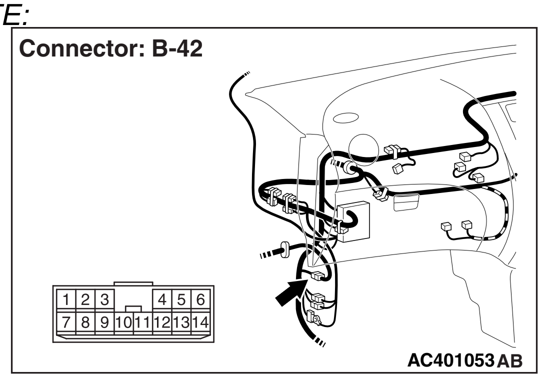
NO : Repair the connector.

Step 8. Check the wiring harness between D-15 door mirror assembly (LH) connector terminal No.6 to B-132 ETACS-ECU connector terminal No.30





NOTE:



Prior to the wiring harness inspection, check intermediate connector B-42, and repair if necessary.

- Check the input and output signal line for open circuit.

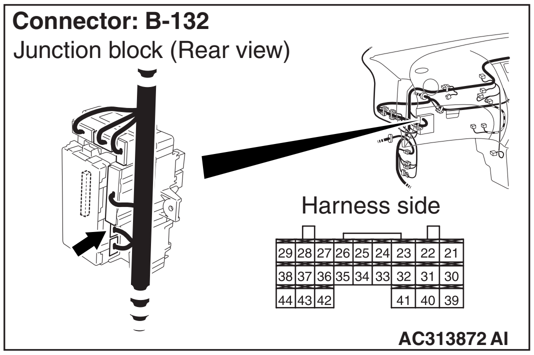
Q: Is the check result normal?

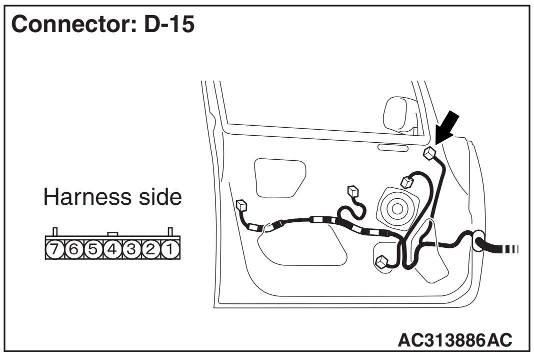
YES : Go to Step 9.

NO : Repair the wiring harness.

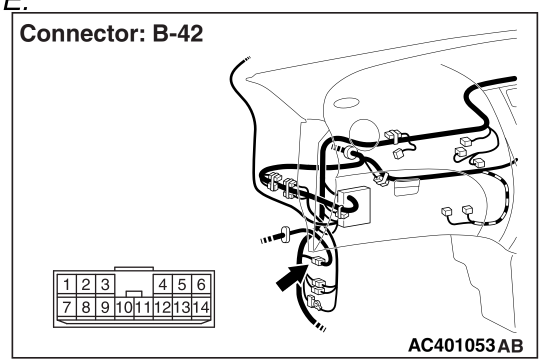
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Step 9. Check the wiring harness between D-15 door mirror assembly (LH) connector terminal No.7 to B-132 ETACS-ECU connector terminal No.40





NOTE:



Prior to the wiring harness inspection, check intermediate connector B-42, and repair if necessary.

- Check the input and output signal line for open circuit.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness.

Step 10. Retest the system

Check that the electric retractable remote controlled mirror works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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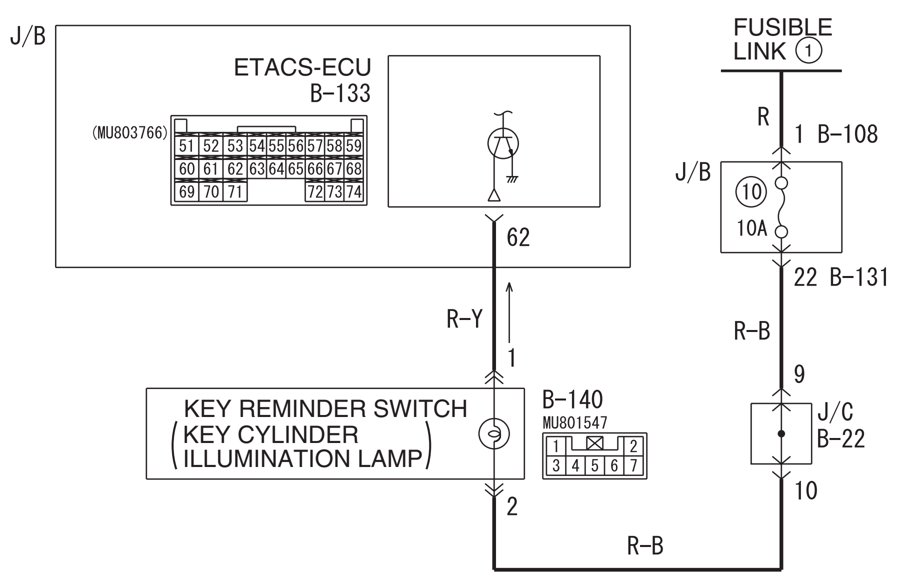
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IGNITION KEY CYLINDER ILLUMINATION LAMP

INSPECTION PROCEDURE I-1: The ignition key cylinder illumination lamp does not illuminate/extinguish normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Ignition Key Cylinder Illumination Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54L007A

COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates this function in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- Driver's door switch

If this function does not work normally, these input signal circuit(s), the ignition key cylinder illumination lamp or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the driver's door switch
- Malfunction of the ignition key cylinder illumination lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the operation of the interior lamp.

Check that the interior lamps illuminate and extinguish normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure M-1 "The interior lamps (room ramp, luggage compartment lamp) does not illuminate or extinguish normally P.54B-183."

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Step 2. Check the power supply circuit.
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

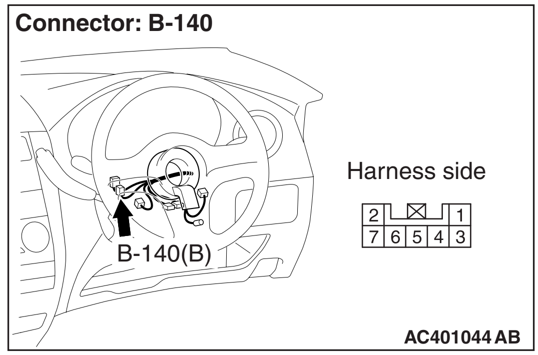
Step 3. Pulse check
Check the input signals below, which are related to the ignition key cylinder illumination lamp.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Key reminder switch	When the inserted ignition key is pulled out
Driver's door switch	When the driver's door is opened

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?
All the signals are received normally. : Go to Step 4.
The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."
The key reminder switch signal is not received. : Refer to Inspection Procedure N-7 "The key reminder switch signal is not received P.54B-210."
The driver's door switch signal is not received. : Refer to Inspection Procedure N-3 "The driver’s door switch signal is not received P.54B-204."

Step 4. Connector check: B-140 key reminder switch connector.



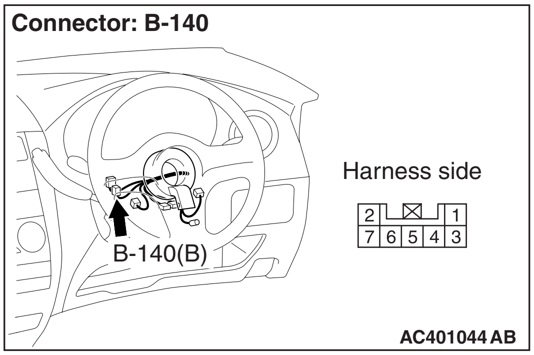
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the bulb of the ignition key cylinder illumination lamp.
Check the bulb of the ignition key cylinder illumination lamp.

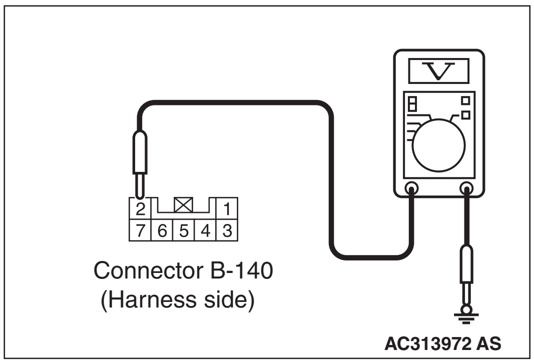
Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the bulb of the ignition key cylinder illumination lamp.

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Step 6. Voltage measurement at B-140 key reminder switch connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Voltage between B-140 key reminder switch connector terminal No.2 and body earth.

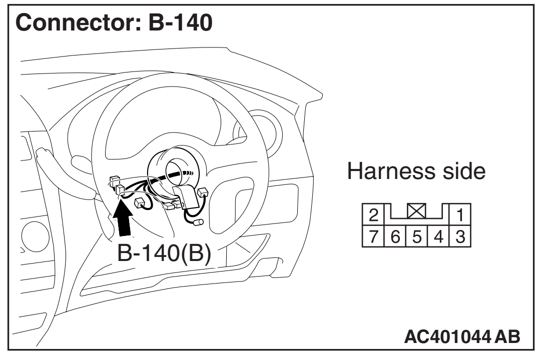
OK: System voltage

Q: Is the check result normal?

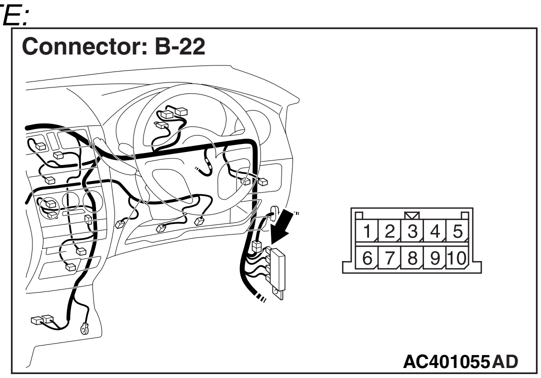
YES : Go to Step 8.

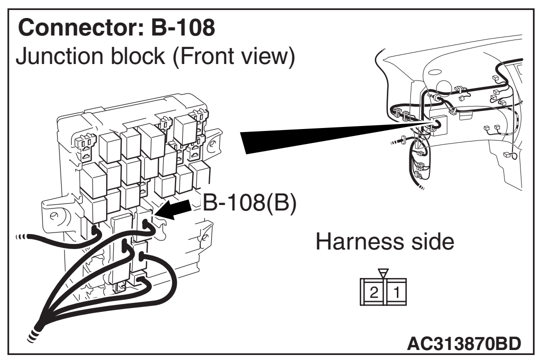
NO : Go to Step 7.

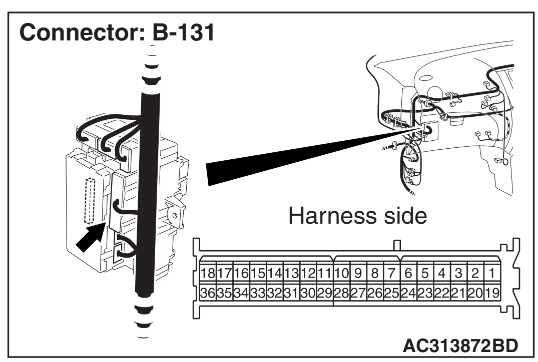
Step 7. Check the wiring harness from B-140 key reminder switch connector terminal No.2 to fusible link (1)



NOTE:







Prior to the wiring harness inspection, check joint connectors B-22, and junction block connector B-131, and B-108, and repair if necessary.

- Check the power supply line for open circuit.

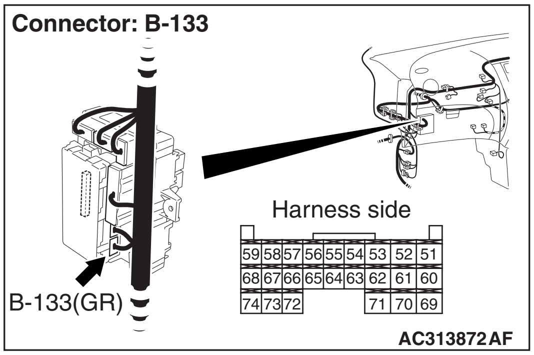
Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness.

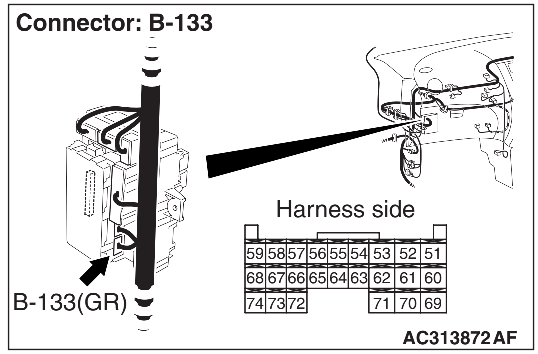
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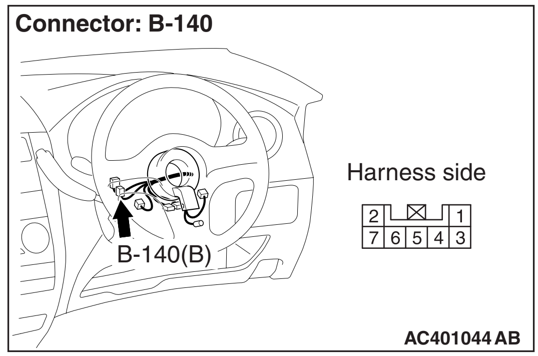
Step 8. Connector check: B-133 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

Step 9. Check the wiring harness from B-133 ETACS-ECU connector terminal No.62 to B-140 key reminder switch connector terminal No.1





- Check the input and output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

Step 10. Retest the system

Check that the ignition key cylinder illumination lamp illuminates/extinguishes normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

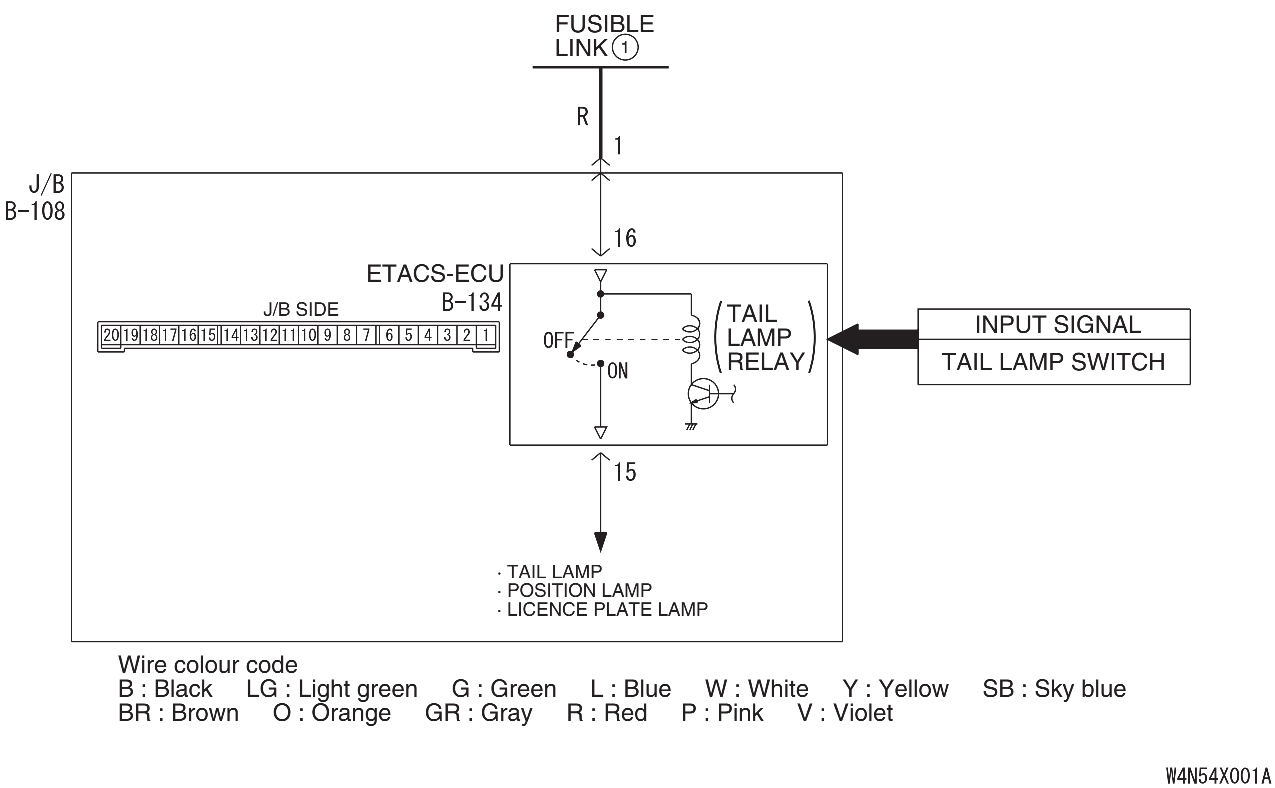
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HEADLAMP AND TAIL LAMP

INSPECTION PROCEDURE J-1: The tail lamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Tail Lamp Relay Circuit



COMMENTS ON TROUBLE SYMPTOM

If all the tail lamps do not illuminate, the tail lamp switch input circuit or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Pulse check

Check the input signal from the tail lamp switch.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Tail lamp switch	When the lighting switch is turned to the TAIL position

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

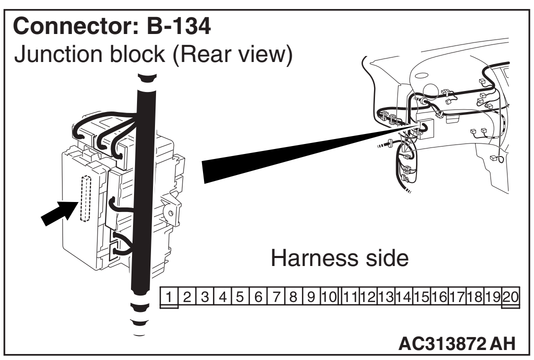
Q: Is the check result normal?

All the signals are received normally. : Go to Step 2.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

The tail lamp switch signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp) signal is not received P.54B-206."

Step 2. Connector check: B-134 ETACS-ECU connector.

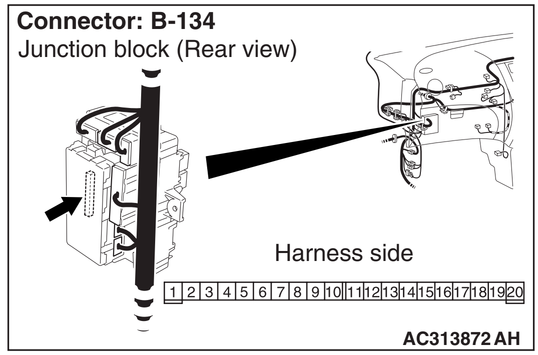


Q: Is the check result normal?

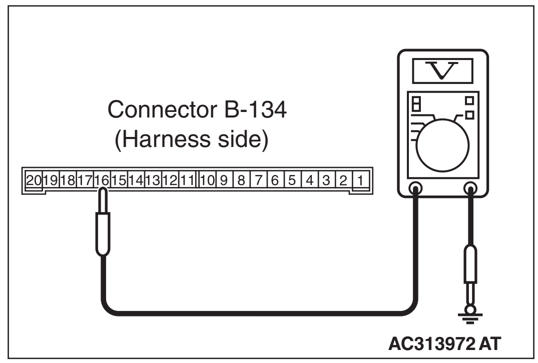
YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Voltage measurement at B-134 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.



(2) Voltage between B-134 ETACS-ECU connector terminal No.16 and body earth

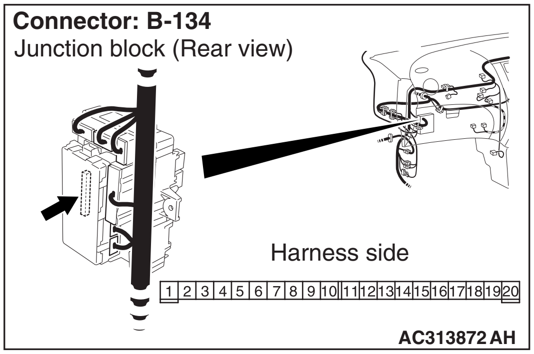
OK: System voltage

Q: Is the check result normal?

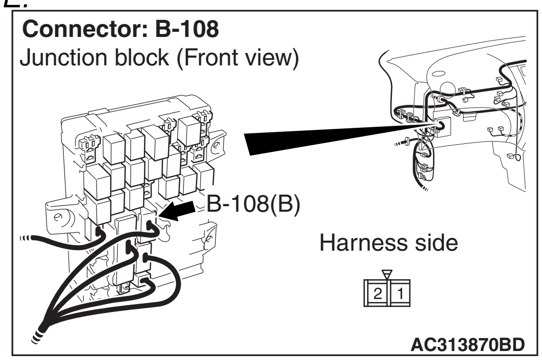
YES : Go to Step 5.

NO : Go to Step 4.

Step 4. Check the wiring harness between B-134 ETACS-ECU connector terminal No.16 and the fusible link (1).



NOTE:



Prior to the wiring harness inspection, check junction block connector B-108, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 5. Retest the system.

Check that the tail lamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

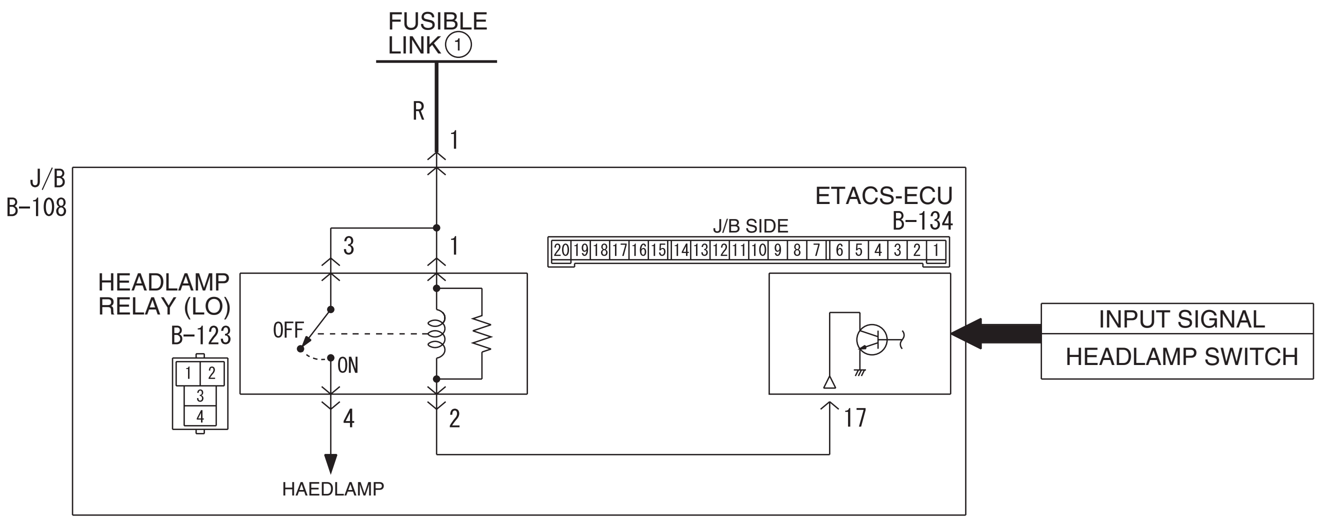
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE J-2: The low-beam headlamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Headlamp Relay (Low-Beam) Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54L000A

COMMENTS ON TROUBLE SYMPTOM

If the low-beam headlamps do not illuminate, the headlamp switch input circuit, the headlamp relay (LO) or the ETACS-ECU may be defective. If the SWS monitor ECU check shows "NG", also check the headlamp backup circuit (from column switch connector terminal No.10 to ETACS-ECU connector terminal No.60) and repair if necessary.

POSSIBLE CAUSES

- Malfunction of the headlamp relay (LO)
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Pulse check

Check the input signal from the headlamp switch.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Headlamp switch	When the lighting switch is turned to the HEAD position

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

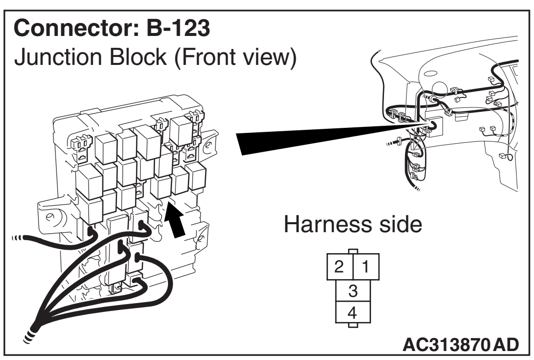
Q: Are the check result normal?

All the signals are received normally. : Go to Step 2.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

The headlamp switch signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

Step 2. Connector check: B-123 headlamp relay (LO) connector



Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Check the headlamp relay (LO).

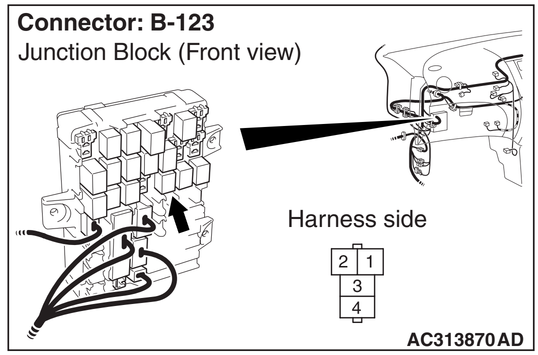
Refer to GROUP 54A – Headlamp P.54A-74.

Q: Is the check result normal?

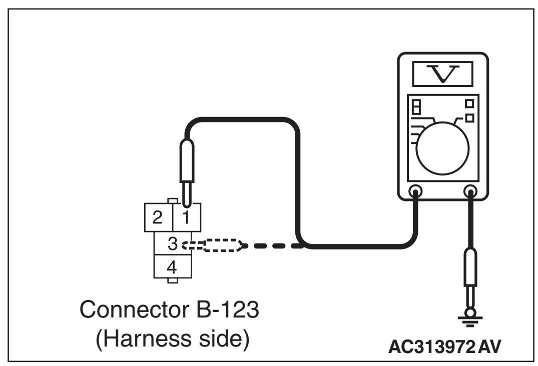
YES : Go to Step 4.

NO : Replace the headlamp relay (LO).

Step 4. Voltage measurement at B-123 headlamp relay (LO) connector.



(1) Remove the headlamp relay (LO), and measure at the junction block side.



(2) Voltage between B-123 headlamp relay (LO) connector terminal Nos.1, 3 and body earth

OK: System voltage

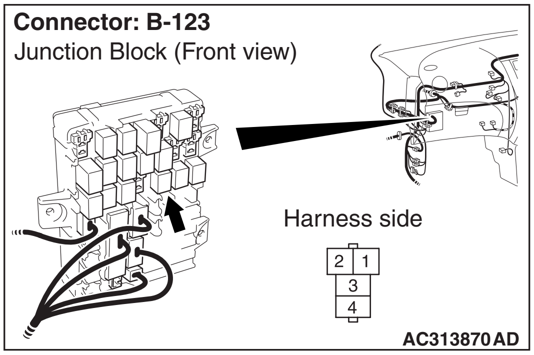
Q: Is the check result normal?

YES : Go to Step 6.

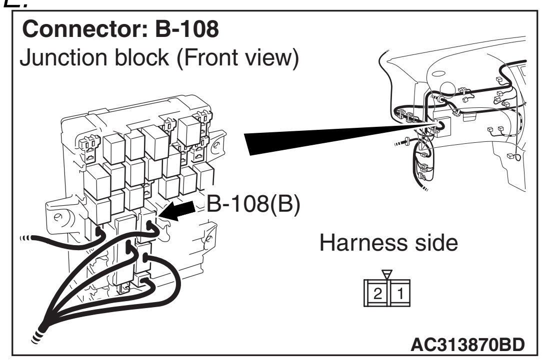
NO : Go to Step 5.

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Step 5. Check the wiring harness between B-123 headlamp relay (LO) connector terminal Nos.1, 3 and the fusible link (1).



NOTE:



Prior to the wiring harness inspection, check the junction block connector B-108, and repair if necessary.

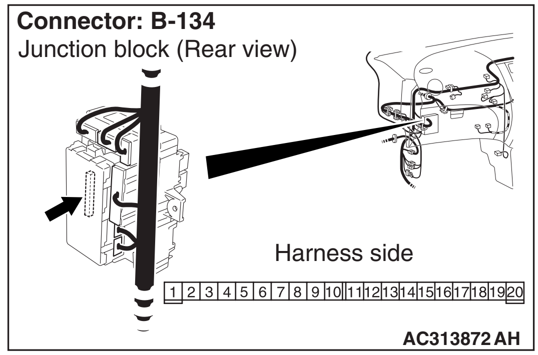
- Check the power supply line from the fusible link (1) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 6. Connector check: B-134 ETACS-ECU connector



Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the defective connector.

Step 7. Retest the system.

Check that the low-beam headlamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

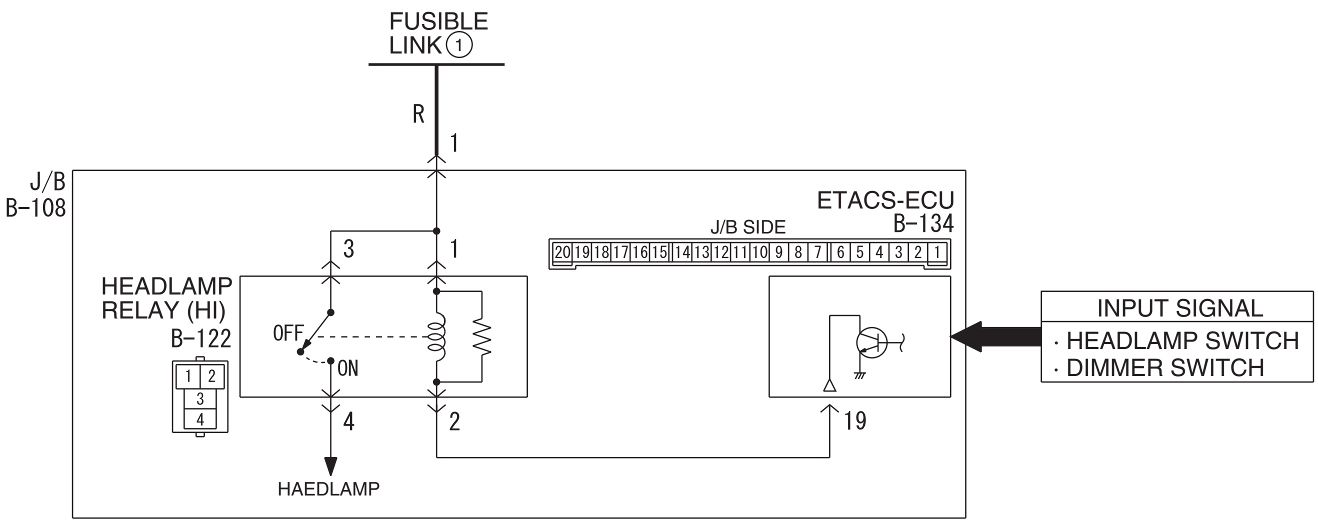
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE J-3: The high-beam headlamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Headlamp Relay (High-Beam) Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54X000A

COMMENTS ON TROUBLE SYMPTOM

If the high-beam headlamps do not illuminate, the headlamp switch input circuit, the headlamp relay (HI) or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the headlamp relay (HI)
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check that the headlamps operate.

Check that the low-beam headlamps illuminate and extinguish normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure J-2 "The low-beam headlamps do not illuminate normally P.54B-138."

Step 2. Pulse check

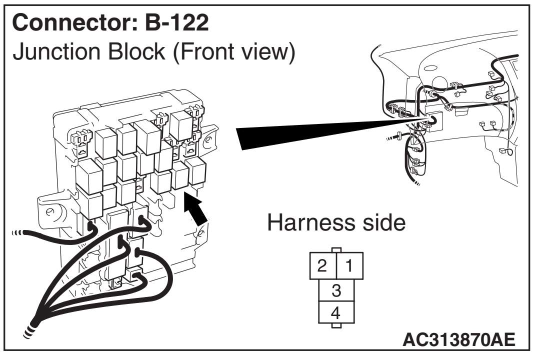
Check the input signal from the dimmer switch.

System switch	Check condition
Dimmer switch	When the dimmer switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

Step 3. Connector check: B-122 headlamp relay (HI) connector



Q: Is the check result normal?

YES : Go to Step 4.
NO : Repair the defective connector.

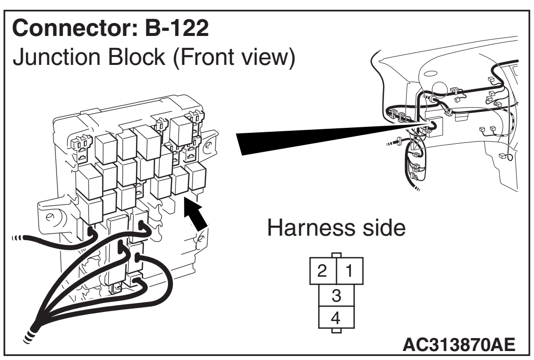
Step 4. Check the headlamp relay (HI).

Refer to GROUP 54A – Headlamp P.54A-74.

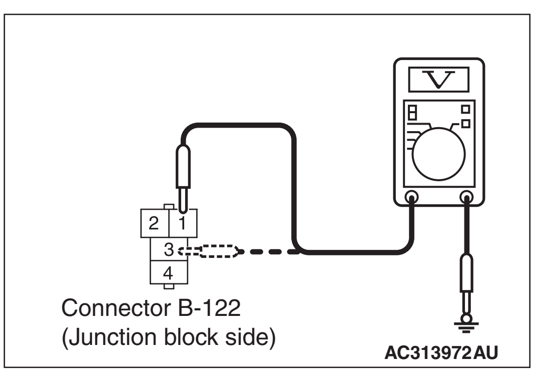
Q: Is the check result normal?

YES : Go to Step 5.
NO : Replace the headlamp relay (HI).

Step 5. Voltage measurement at B-122 headlamp relay (HI) connector.



(1) Remove the headlamp relay (HI), and measure at the junction block side.



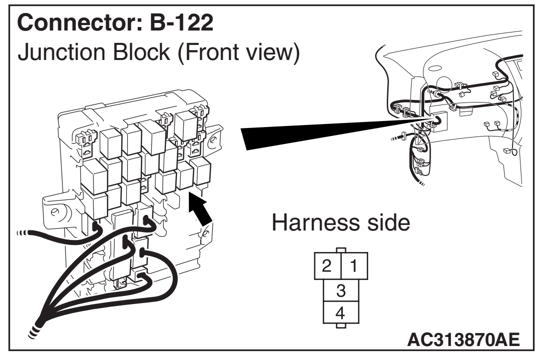
(2) Voltage between B-122 headlamp relay (HI) connector terminal Nos.1, 3 and body earth

OK: System voltage

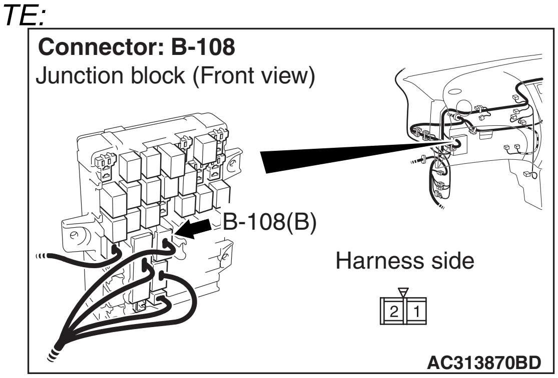
Q: Is the check result normal?

YES : Go to Step 7.
NO : Go to Step 6.

Step 6. Check the wiring harness between B-122 headlamp relay (HI) connector terminal Nos.1, 3 and the fusible link (1).



NOTE:



Prior to the wiring harness inspection, check the junction block connector B-108, and repair if necessary.

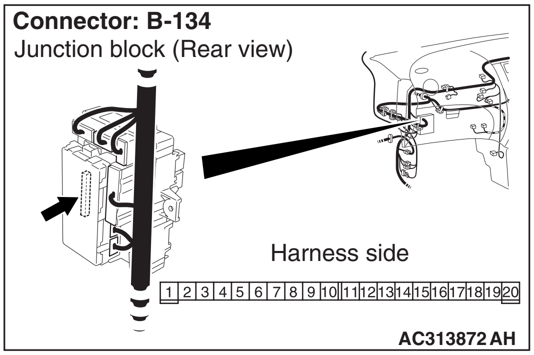
- Check the power supply line from the fusible link (1) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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Step 7. Connector check: B-134 ETACS-ECU connector



Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the defective connector.

Step 8. Retest the system.

Check that the high-beam headlamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE J-4: The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the low-beam and high-beam headlamps are normal, the passing switch input signal circuit or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the operation of the headlamps.

Check that the low-beam and high-beam headlamps illuminate normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the headlamps. Refer to trouble symptom chart P.54B-35.

Step 2. Pulse check

Check the input signal from the passing switch.

System switch	Check condition
Passing lamp switch	When the passing switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

Step 3. Retest the system.

When the passing switch is turned on, check if the headlamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

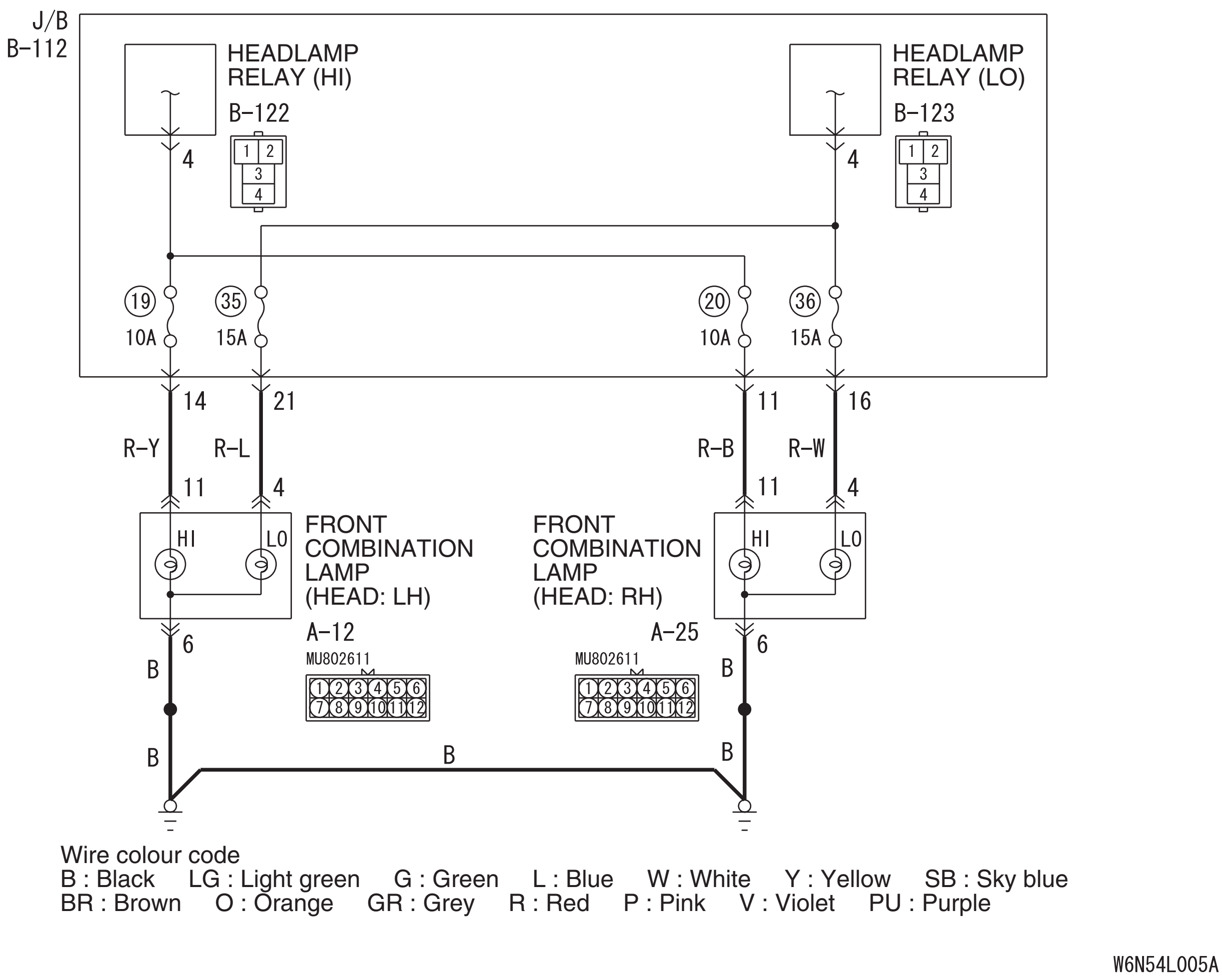
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE J-5: The headlamp(s) do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Headlamps Circuit



COMMENTS ON TROUBLE SYMPTOM

If any of the headlamps does not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

POSSIBLE CAUSES

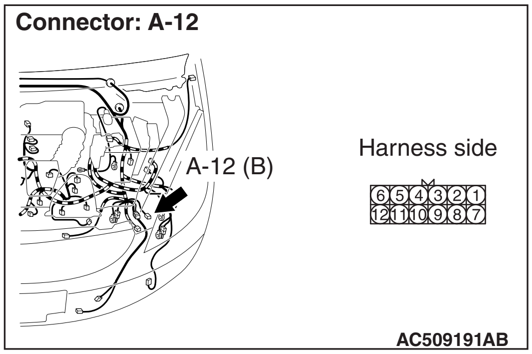
- Malfunction of the headlamp bulbs
- Damaged harness wires and connectors

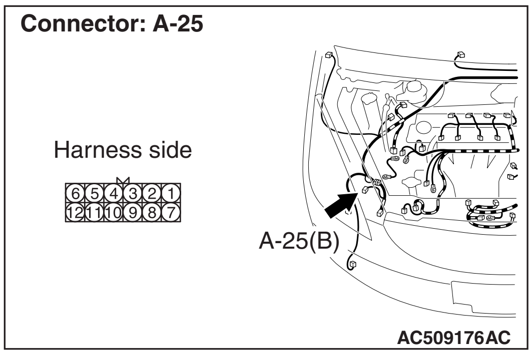
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DIAGNOSTIC PROCEDURE

Step 1. Connector check: A-12 front combination lamp (HEAD: LH) connector or A-25 front combination lamp (HEAD: RH) connector

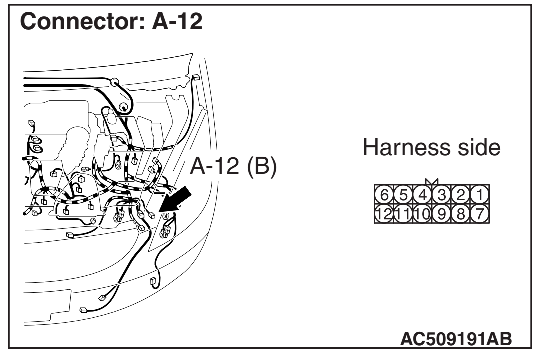


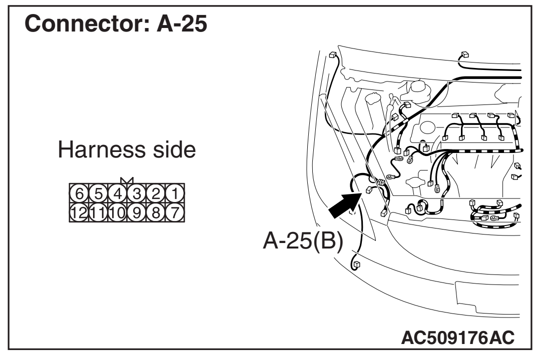


Q: Is the check result normal?

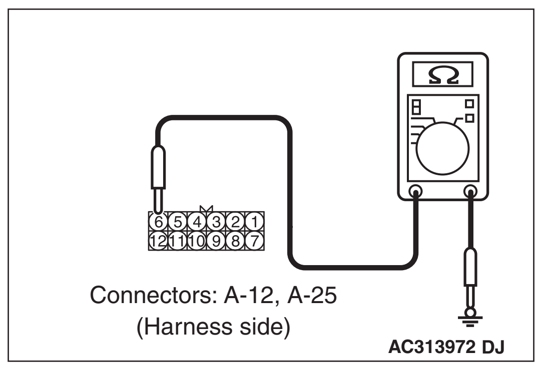
YES (Either of LH side and RH side does not illuminate) : Go to Step 2.
YES (Low-beam of LH side or RH side does not illuminate) : Go to Step 5.
YES (High-beam of LH side or RH side does not illuminate) : Go to Step 9.
NO (the connectors are not in good condition) : Repair the defective connector.

Step 2. Resistance measurement at the A-12 front combination lamp (HEAD: LH) connector or the A-25 front combination lamp (HEAD: RH) connector.





(1) Disconnect the connector, and measure at the wiring harness side.



(2) Check the resistance between the lamp connector and body earth.
- Resistance between A-12 front combination lamp (HEAD: LH) connector terminal No.6 and body earth
- Resistance between A-25 front combination lamp (HEAD: RH) connector terminal No.6 and body earth

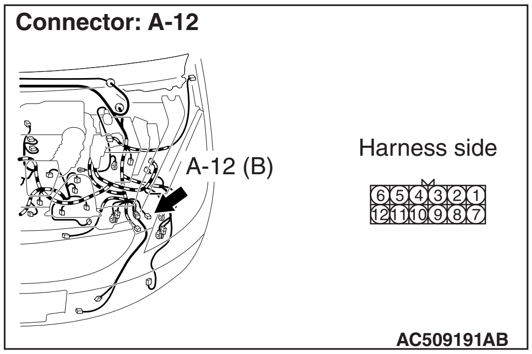
OK: Continuity exists (2 Ω or less)

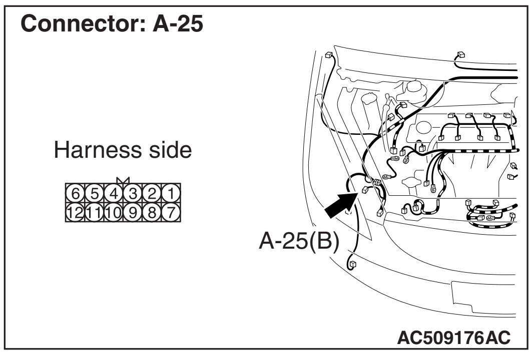
Q: Is the check result normal?

YES : Go to Step 4.
NO : Go to Step 3.

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Step 3. Check the wiring harness from A-12 front combination lamp (HEAD: LH) connector terminal No.6 or A-25 front combination lamp (HEAD: RH) connector terminal No.6 to body earth.





- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 4. Retest the system.

(1) Replace the socket of the defective headlamp.
(2) Check that the headlamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the front combination lamp.

Step 5. Check the bulb(s) of the headlamps.

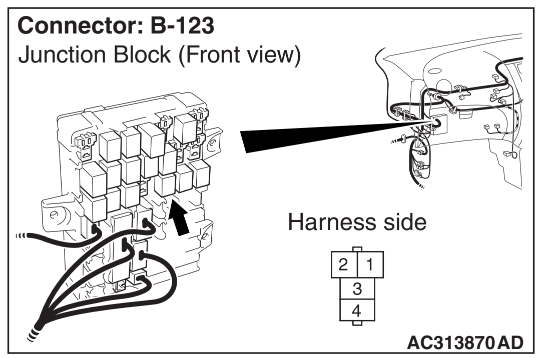
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the bulb(s) of the defective lamp.

Step 6. Connector check: B-123 headlamp relay (LO) connector



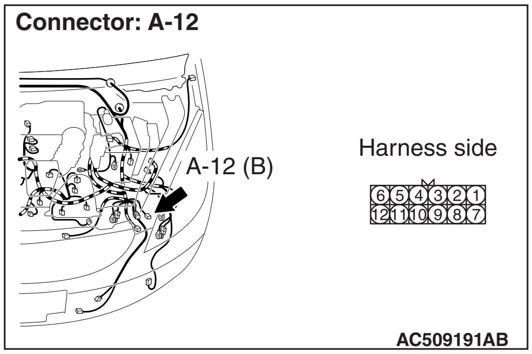
Q: Is the check result normal?

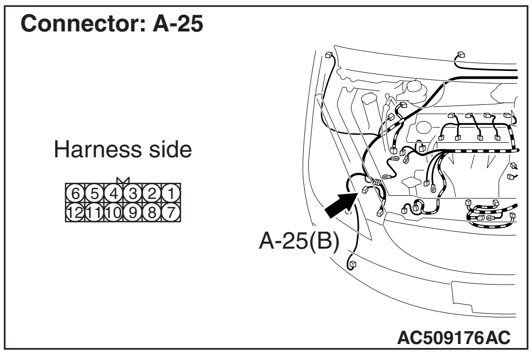
YES : Go to Step 7.

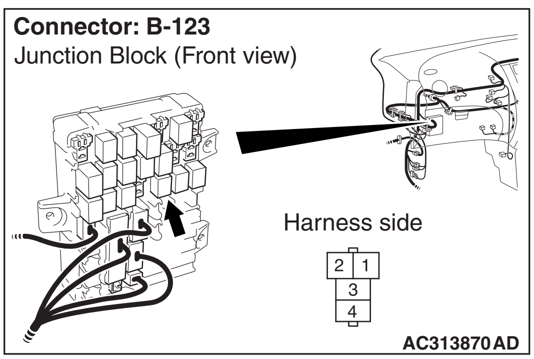
NO : Repair the defective connector.

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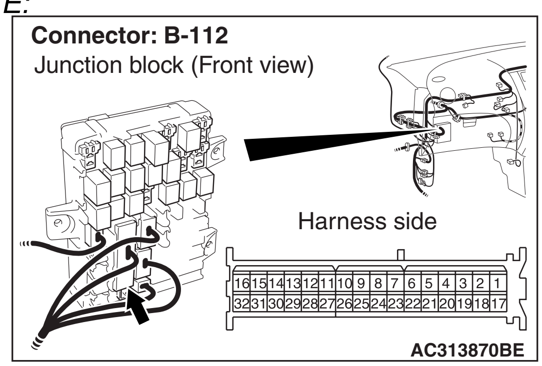
Step 7. Check the wiring harness from A-12 front combination lamp (HEAD: LH) connector terminal No.4 or A-25 front combination lamp (HEAD: RH) connector terminal No.4 to B-123 headlamp relay (LO) connector terminal No.4.







NOTE:



Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the wiring harness.

Step 8. Retest the system.

(1) Replace the socket of the defective headlamp.

(2) Check that the headlamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the front combination lamp.

Step 9. Check the bulb(s) of the headlamps.

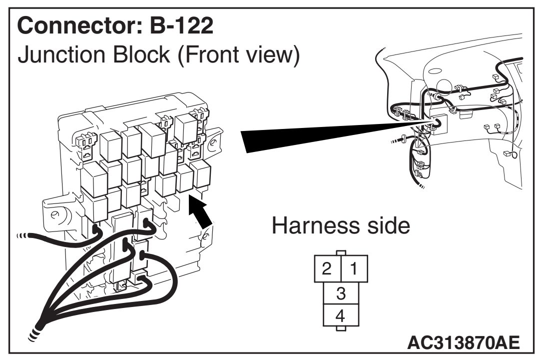
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Replace the bulb(s) of the defective lamp.

Step 10. Connector check: B-122 headlamp relay (HI) connector



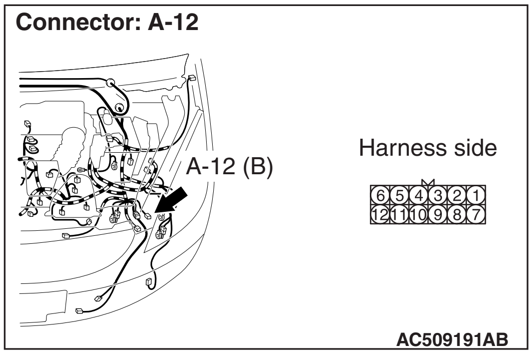
Q: Is the check result normal?

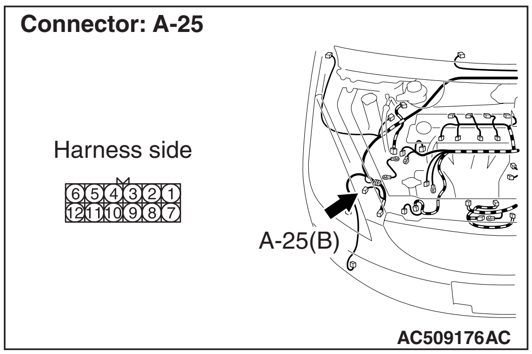
YES : Go to Step 11.

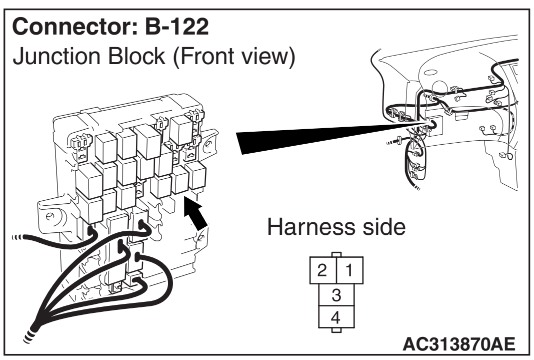
NO : Repair the defective connector.

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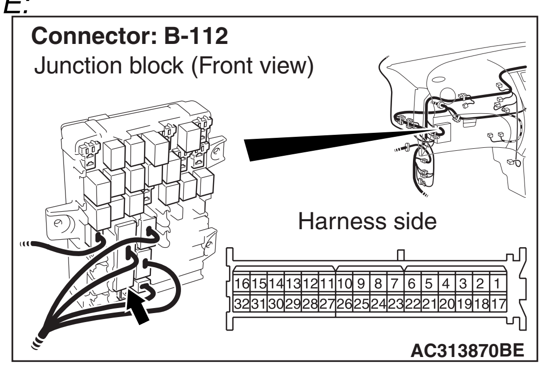
Step 11. Check the wiring harness from A-12 front combination lamp (HEAD: LH) connector terminal No.11 or A-25 front combination lamp (HEAD: RH) connector terminal No.11 to B-122 headlamp relay (HI) connector terminal No.4.







NOTE:



Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 12.

NO : Repair the wiring harness.

Step 12. Retest the system.

(1) Replace the socket of the defective headlamp.

(2) Check that the headlamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

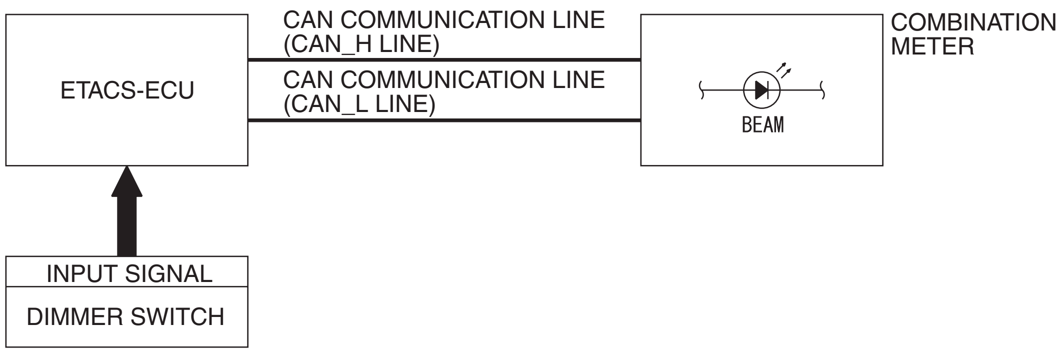
NO : Replace the front combination lamp.

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INSPECTION PROCEDURE J-6: The high-beam indicator lamp does not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

High-Beam Indicator Lamp Circuit



COMMENTS ON TROUBLE SYMPTOM

If the high beam indicator does not illuminate normally, connector(s), wiring harness in the CAN bus lines, the ETACS-ECU or the combination meter may be defective.

POSSIBLE CAUSES

- Malfunction of the combination meter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the headlamps.

When the lighting switch is operated, check that the headlamps illuminate/go off normally.

Q: Are the headlamps in good condition?

YES : Go to Step 2.
NO : First, repair the headlamps. Refer to Inspection Procedure J-3 "The high-beam headlamps do not illuminate normally P.54B-141."

Step 2. M.U.T.-III CAN bus diagnostics.

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54D, Diagnosis P.54D-13).

Step 3. M.U.T.-III other system diagnosis code.

Check whether the combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).
NO : Go to Step 4.

Step 4. M.U.T.-III actuator test

Perform the actuator test for the combination meter, and check that the high-beam indicator illuminates (Refer to GROUP 54A – Combination Meter P.54A-62).

Q: Is the check result normal?

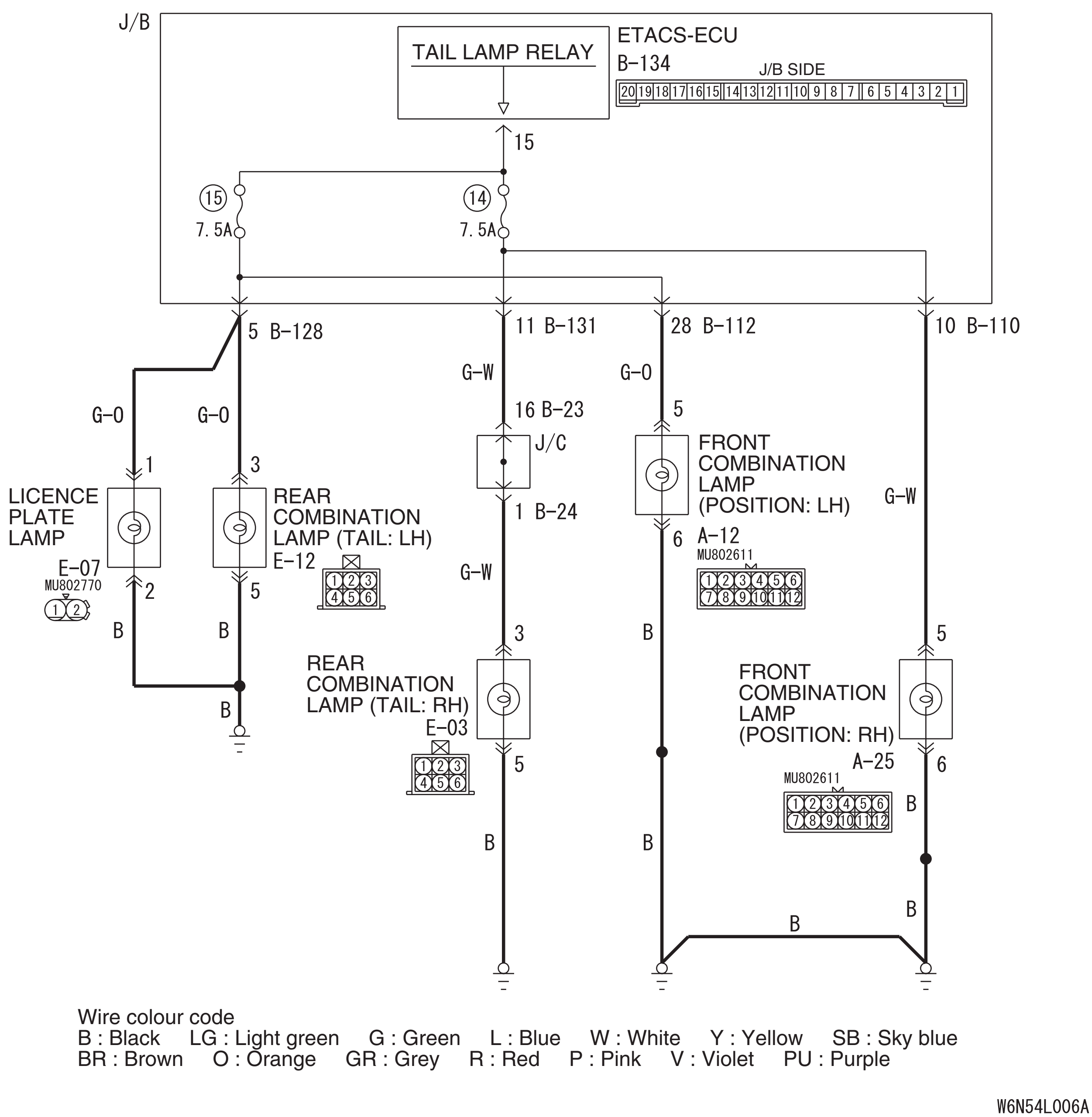
YES : Replace the ETACS-ECU.
NO : Replace the combination meter.

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INSPECTION PROCEDURE J-7: Any of tail lamps, position lamps or licence plate lamp does not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Tail Lamps, Position Lamps and Licence Plate Lamp Circuit



COMMENTS ON TROUBLE SYMPTOM

If the tail lamps, the position lamps or the licence plate lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

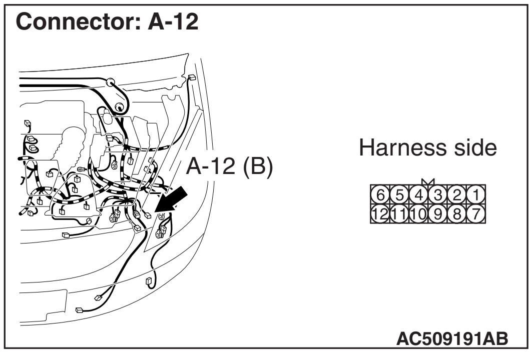
POSSIBLE CAUSES

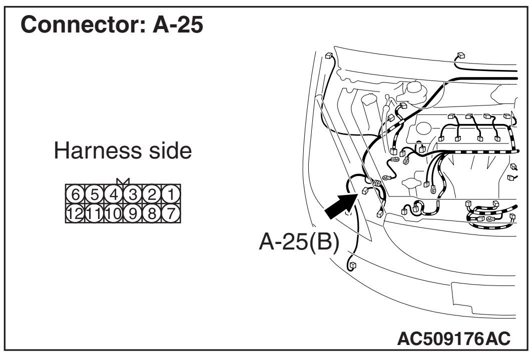
- Burned-out bulb
- Damaged harness wires and connectors

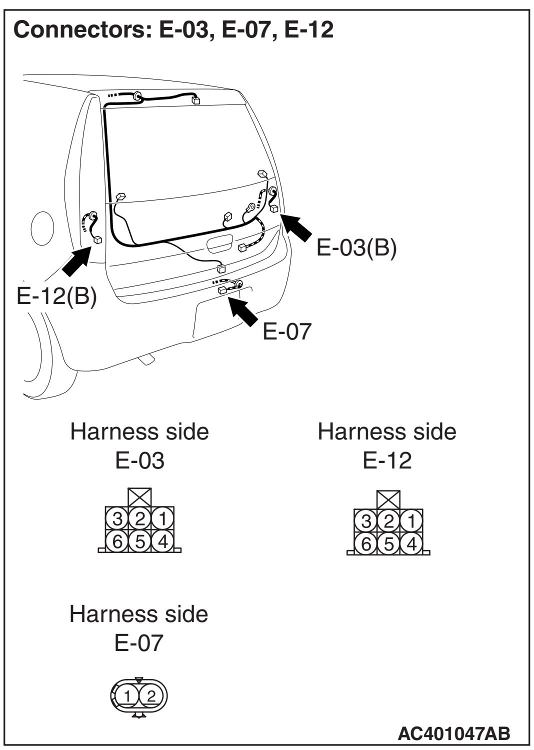
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DIAGNOSTIC PROCEDURE

Step 1. Connector check: E-12 rear combination lamp (tail: LH) connector or E-03 rear combination lamp (tail: RH) connector, A-12 front combination lamp (position: LH) connector or A-25 front combination lamp (position: RH) connector or E-07 licence plate lamp (LH) connector







Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector.

Step 2. Check the bulbs of the tail lamps, the position lamps or the licence plate lamps.

Check the bulb of the lamp which does not illuminate.

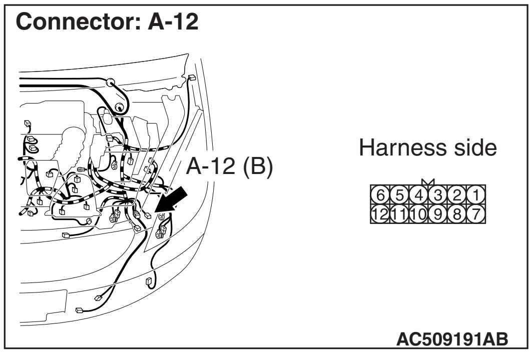
Q: Is the check result normal?

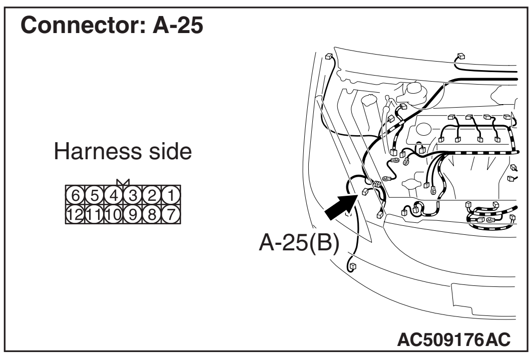
YES : Go to Step 3.

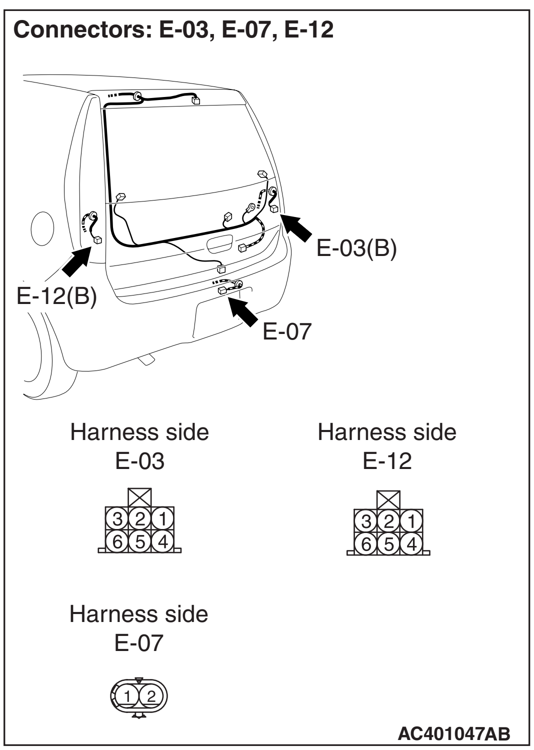
NO : Replace the bulb of the lamp which does not illuminate.

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Step 3. Resistance measurement at the E-12 rear combination lamp (tail: LH) connector or E-03 rear combination lamp (tail: RH) connector, A-12 front combination lamp (position: LH) connector or A-25 front combination lamp (position: RH) connector or E-07 licence plate lamp (LH) connector.

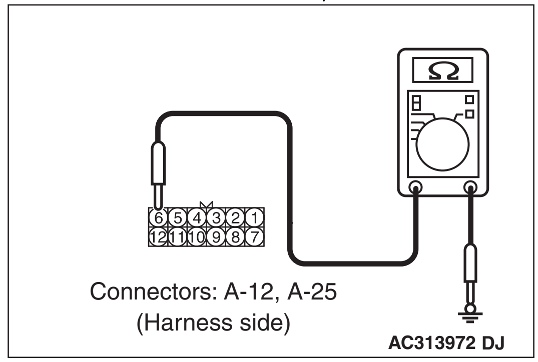






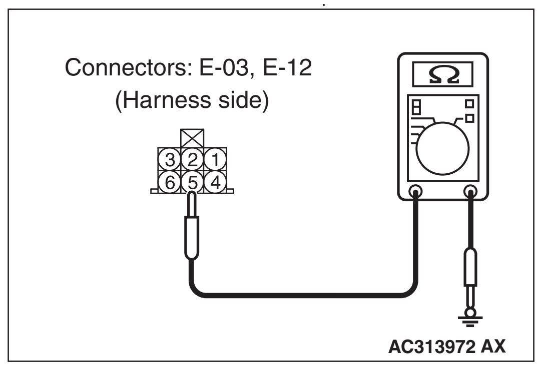
(1) Disconnect the connector, and measure at the wiring harness side.

(2) Check the resistance between the lamp connector and body earth.



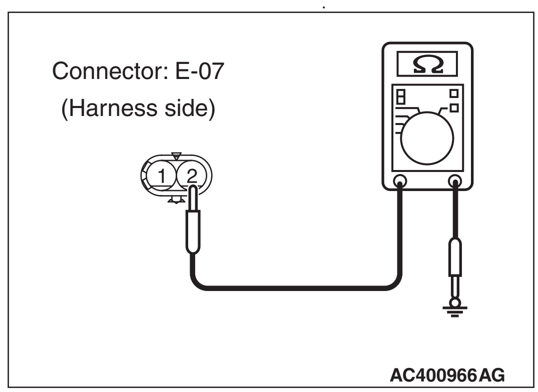
Resistance between A-12 front combination lamp (position: LH) connector terminal No.6 and body earth

- Resistance between A-25 front combination lamp (position: RH) connector terminal No.6 and body earth



Resistance between E-12 rear combination lamp (tail: LH) connector terminal No.5 and body earth

- Resistance between E-03 rear combination lamp (tail: RH) connector terminal No.5 and body earth



Resistance between E-07 licence plate lamp connector terminal No.2 and body earth

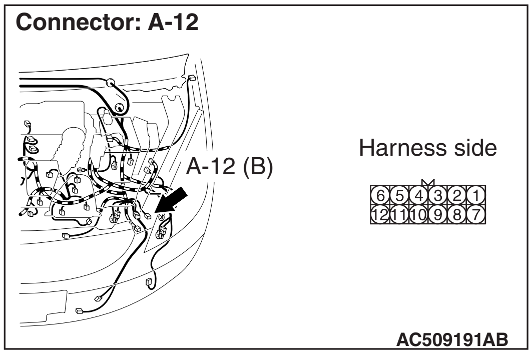
OK: Continuity exists (2 Ω or less)

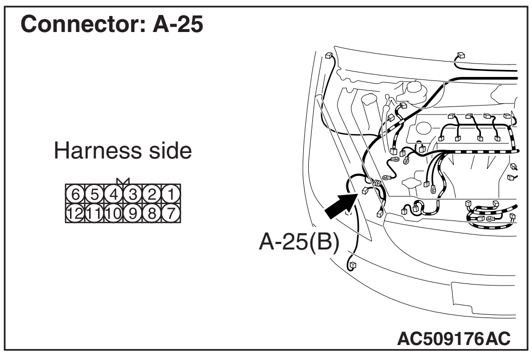
Q: Is the check result normal?

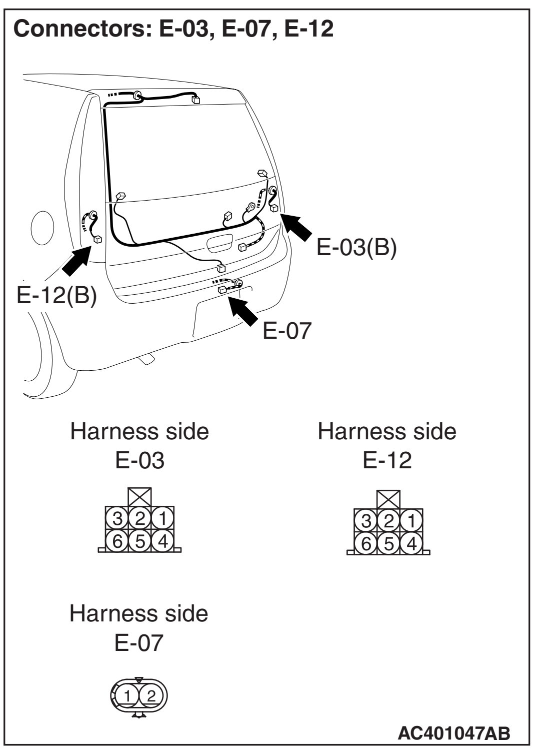
YES : Go to Step 5.
NO : Go to Step 4.

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Step 4. Check the wiring harness from E-12 rear combination lamp (tail: LH) connector terminal No.5 or E-03 rear combination lamp (tail: RH) connector terminal No.5, A-12 front combination lamp (position: LH) connector terminal No.6 or A-25 front combination lamp (position: RH) connector terminal No.6 or E-07 licence plate lamp (LH) connector terminal No.2 to body earth.







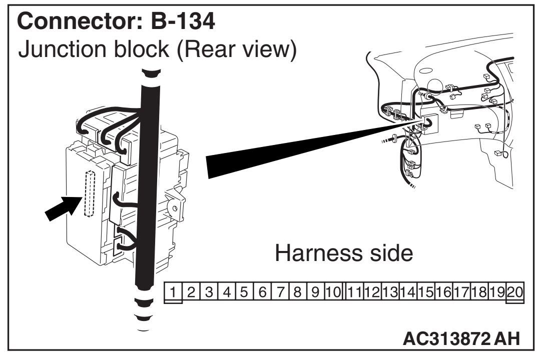
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the wiring harness.

Step 5. Connector check: B-134 ETACS-ECU connector



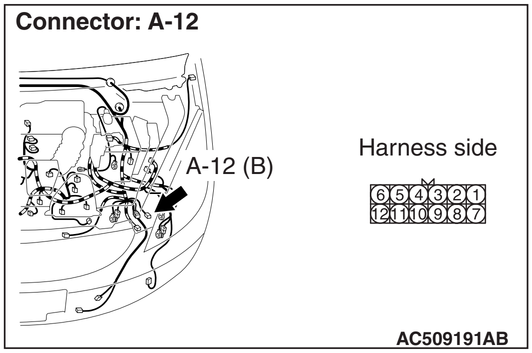
Q: Is the check result normal?

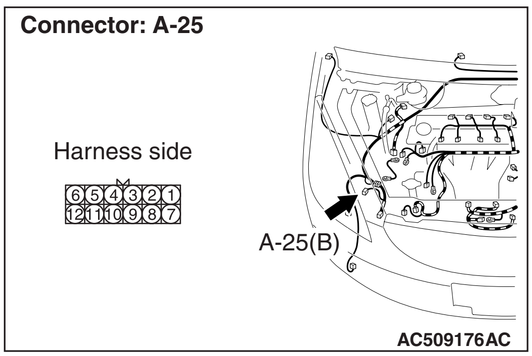
YES : Go to Step 6.

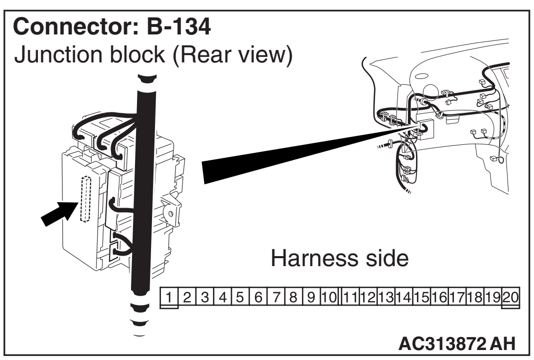
NO : Repair the defective connector.

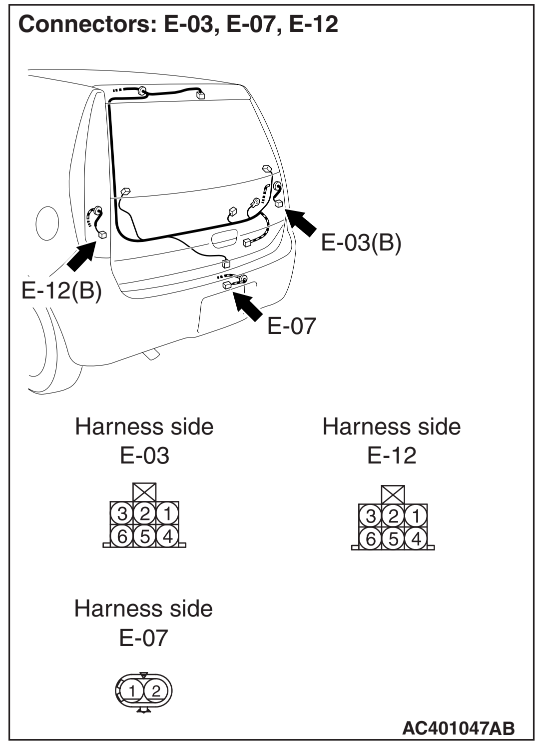
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Step 6. Check the wiring harness from E-12 rear combination lamp (tail: LH) connector terminal No.3 or E-03 rear combination lamp (tail: RH) connector terminal No.3, A-12 front combination lamp (position: LH) connector terminal No.5 or A-25 front combination lamp (position: RH) connector terminal No.5 or E-07 licence plate lamp (LH) connector terminal No.1 to B-134 ETACS-ECU connector terminal No.15.

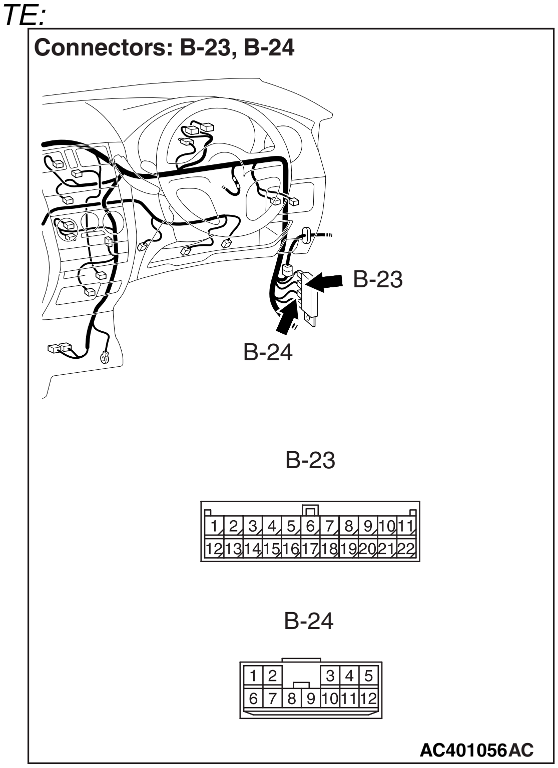




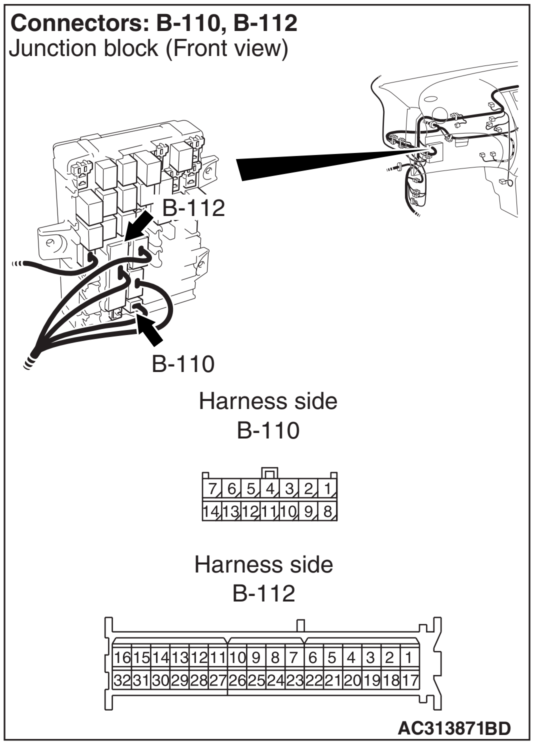


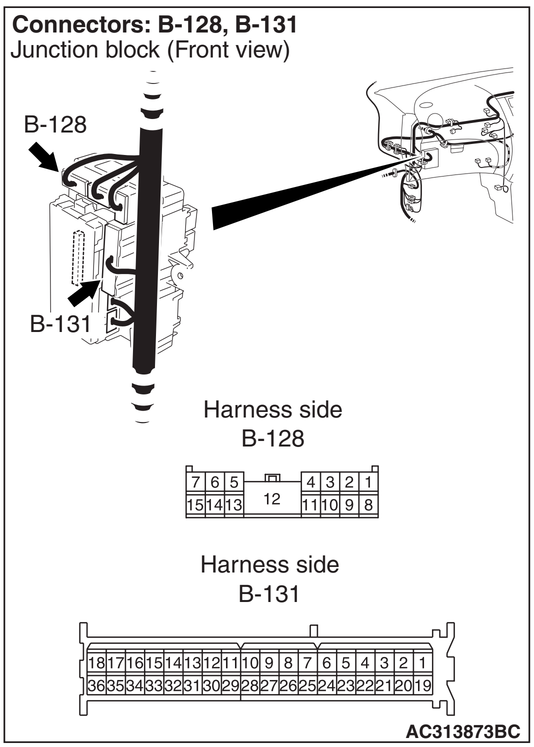


NOTE:



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Prior to the wiring harness inspection, check junction block connectors B-128 <tail lamp (LH) or licence plate lamp>, B-131 <tail lamp (RH)>, B-112 <position lamp (LH)>, B-110 <position lamp (RH)>, joint connector B-23 and B-24, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

Check that the tail/stop lamps, the position lamps and the licence plate lamps illuminate normally.

Q: Is the check result normal?

The lamps illuminate normally at both high and low beams. : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

When the tail lamps do not illuminate : Replace the tail lamp socket.

When the position lamps do not illuminate : Replace the position lamp socket.

When the licence plate lamps do not illuminate : Replace the licence plate lamp socket.

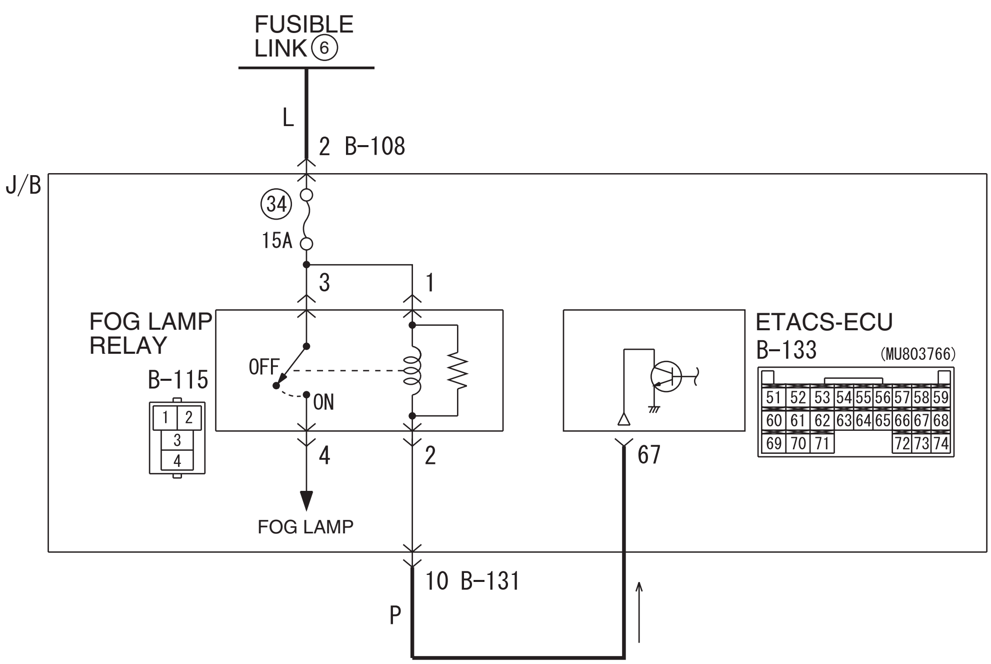
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FOG LAMP

INSPECTION PROCEDURE K-1: The fog lamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Fog Lamp Relay Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54X007A

COMMENTS ON TROUBLE SYMPTOM

If the fog lamps do not illuminate normally, the input signal circuit(s) below or the ETACS-ECU may be defective.

- Tail lamp switch
- Headlamp switch
- Fog lamp switch

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the fog lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check that the tail/stop lamps and headlamps operate.

Check that the tail/stop lamps and headlamps illuminate normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the tail/stop lamp(s) and headlamp(s). Refer to trouble symptom chart P.54B-35.

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Step 2. Pulse check

Check the input signals below, which are related to the fog lamps.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Tail lamp switch	When the lighting switch is turned to the TAIL position
Headlamp switch	When the lighting switch is turned to the HEAD position
Fog lamp switch	When the fog lamp switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

All the signals are received normally. : Go to Step 3.

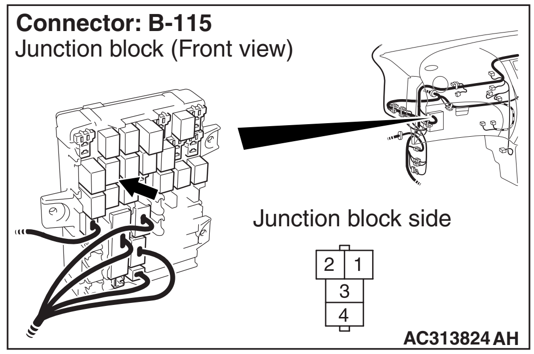
The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

The tail lamp switch signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

The headlamp switch signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

The fog lamp switch signal is not received. : Refer to Inspection Procedure N-13 "The fog lamp switch signal is not received P.54B-228."

Step 3. Connector check: B-115 fog lamp relay connector



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Check the fog lamp relay.

Refer to GROUP 54A – Fog lamp P.54A-79.

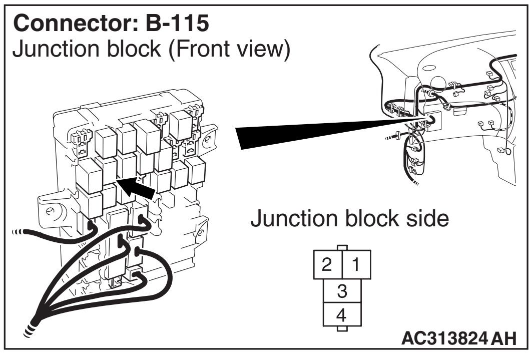
Q: Is the check result normal?

YES : Go to Step 5.

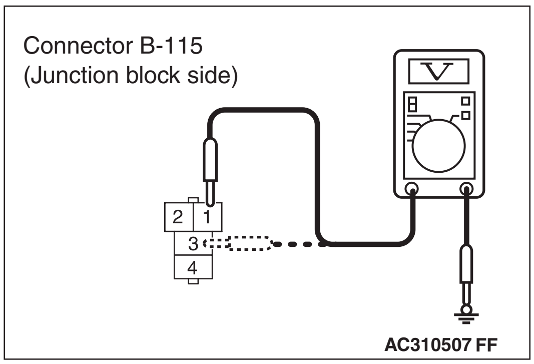
NO : Replace the fog lamp relay.

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Step 5. Voltage measurement at the B-115 fog lamp relay connector.



(1) Remove the fog lamp relay, and measure at the junction block side.

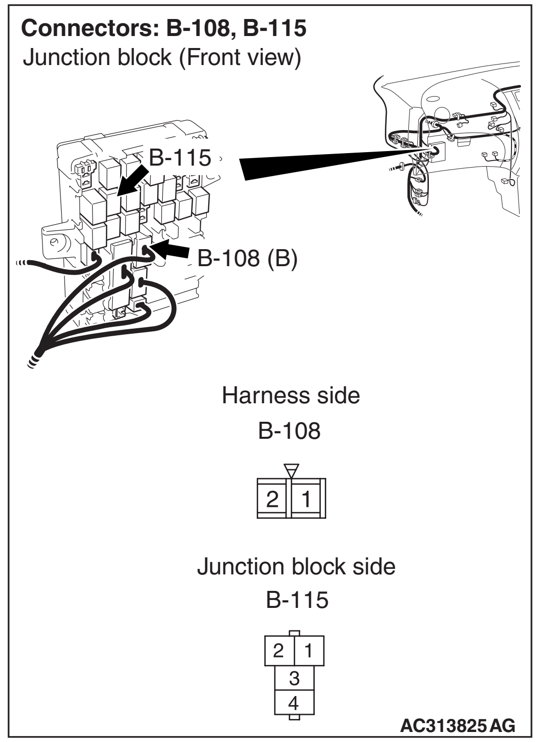


(2) Check the voltage between the fog lamp relay connector and body earth.
- Voltage between B-115 fog lamp relay connector terminal No.1 and body earth
- Voltage between B-115 fog lamp relay connector terminal No.3 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

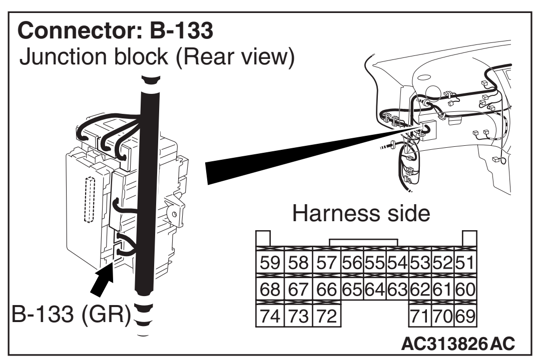
Step 6. Check the wiring harness between B-115 fog lamp relay connector terminals Nos.1 and 3 to the fusible link (6).



NOTE: Prior to the wiring harness inspection, check junction block connector B-108, and repair if necessary.
- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the wiring harness.

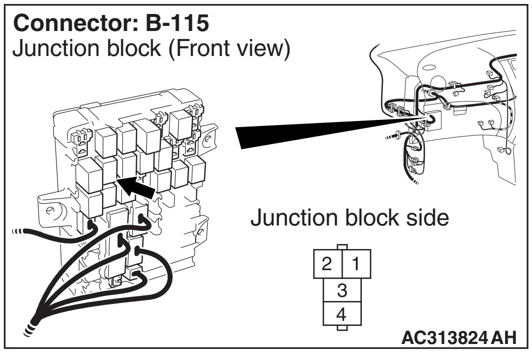
Step 7. Connector check: B-133 ETACS-ECU connector

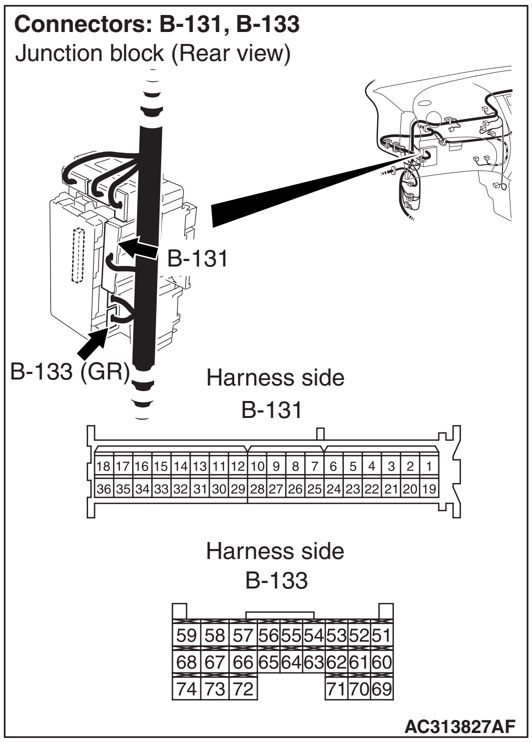


Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the defective connector.

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Step 8. Check the wiring harness between B-115 fog lamp relay connector terminal No.2 to B-133 ETACS-ECU connector terminal No.67.





NOTE: Prior to the wiring harness inspection, check junction block connector B-131, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the wiring harness.

Step 9. Retest the system.

Check that the fog lamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

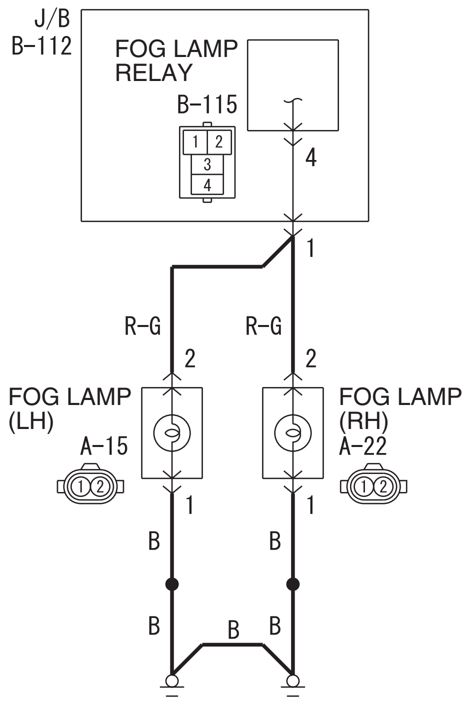
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE K-2: Any of the fog lamps does not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Fog Lamps Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W6N54L007A

COMMENTS ON TROUBLE SYMPTOM

If any of the fog lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

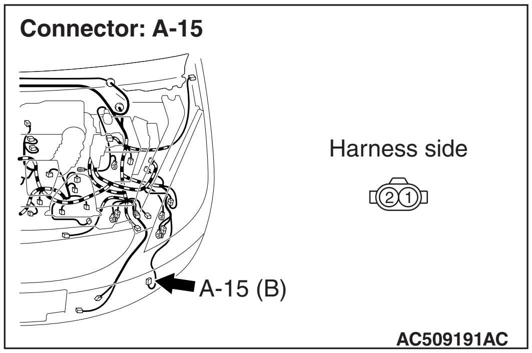
POSSIBLE CAUSES

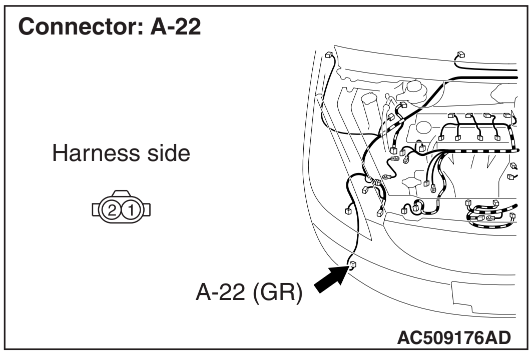
- Burned-out fog lamp bulb
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Connector check: A-22 fog lamp (RH) connector or A-15 fog lamp (LH) connector





Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector.

Step 2. Check the bulbs of the fog lamps lamp.

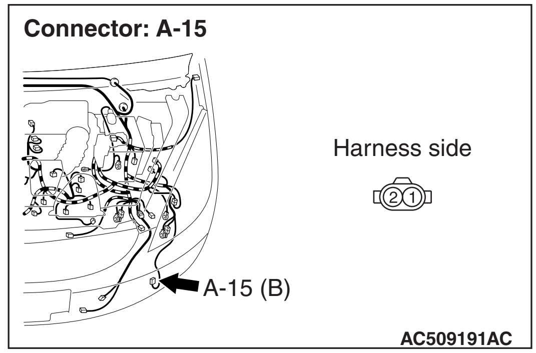
Check the bulb(s) of the defective lamp.

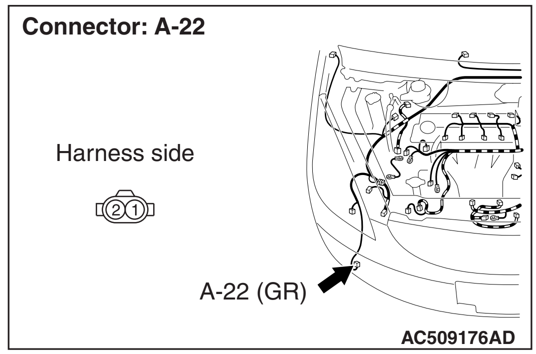
Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the bulb(s) of the defective lamp.

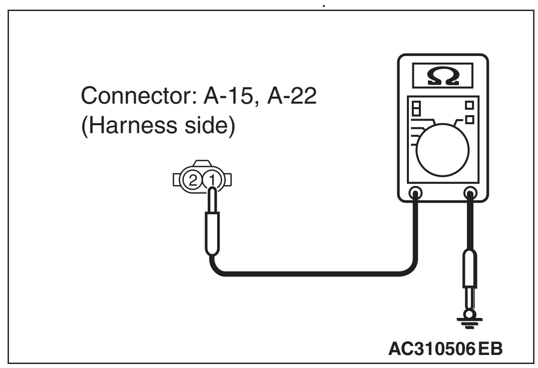
Step 3. Resistance measurement at the A-22 fog lamp (RH) connector or A-15 fog lamp (LH) connector.





(1) Disconnect the connector, and measure at the wiring harness side.

(2) Check the resistance between the lamp connector and body earth.



Resistance between A-22 fog lamp (RH) connector terminal No.1 and body earth

- Resistance between A-15 fog lamp (LH) connector terminal No.1 and body earth

OK: Continuity exists (2 Ω or less)

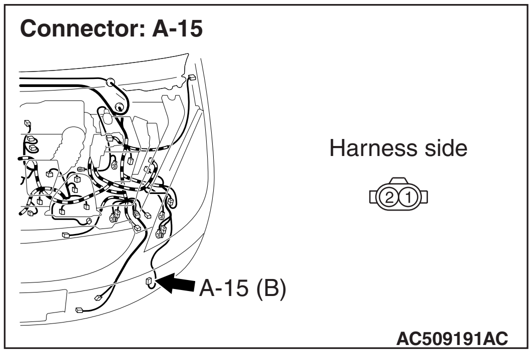
Q: Is the check result normal?

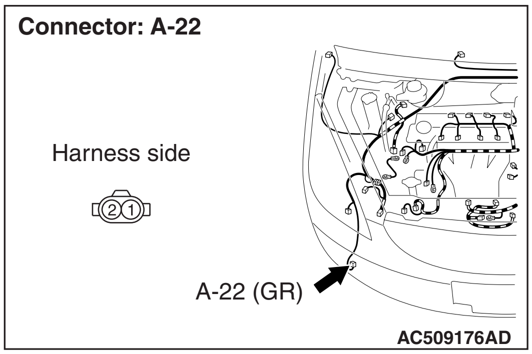
YES : Go to Step 5.

NO : Go to Step 4.

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Step 4. Check the wiring harness from A-22 fog lamp (RH) connector or A-15 fog lamp (LH) connector terminal No.1 to body earth.

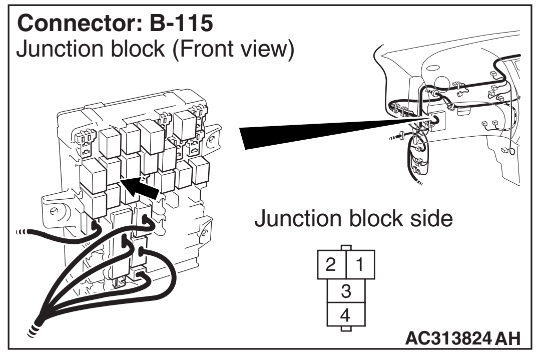




- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

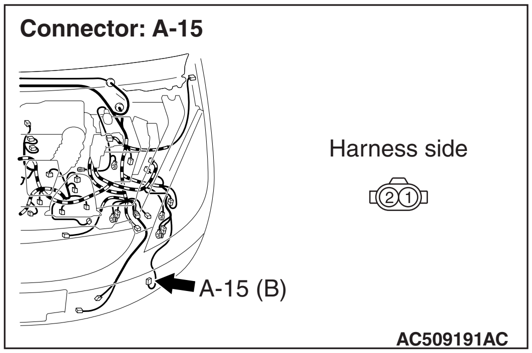
Step 5. Connector check: Connector check: B-115 fog lamp relay connector

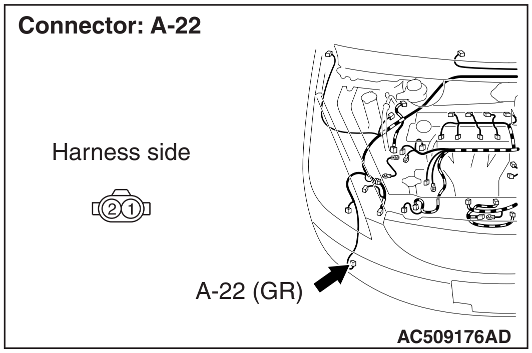


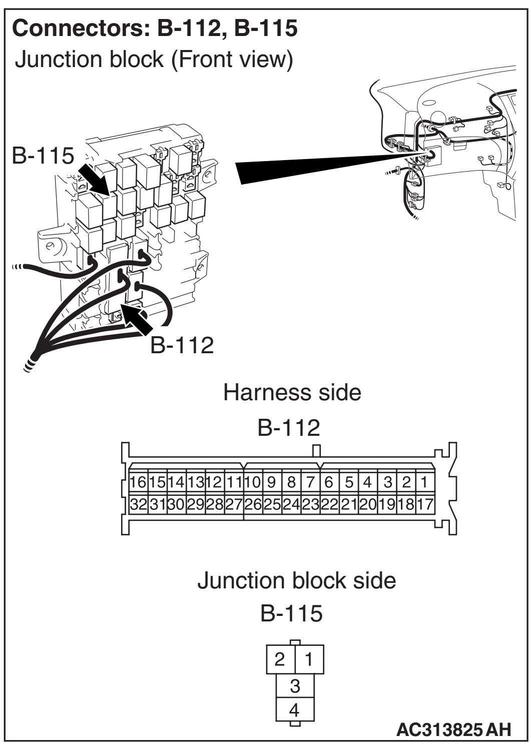
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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Step 6. Check the wiring harness from A-22 fog lamp (RH) connector or A-15 fog lamp (LH) connector terminal No.2 to B-115 fog lamp relay connector terminal No.4.







NOTE: Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

Check that the fog lamp illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

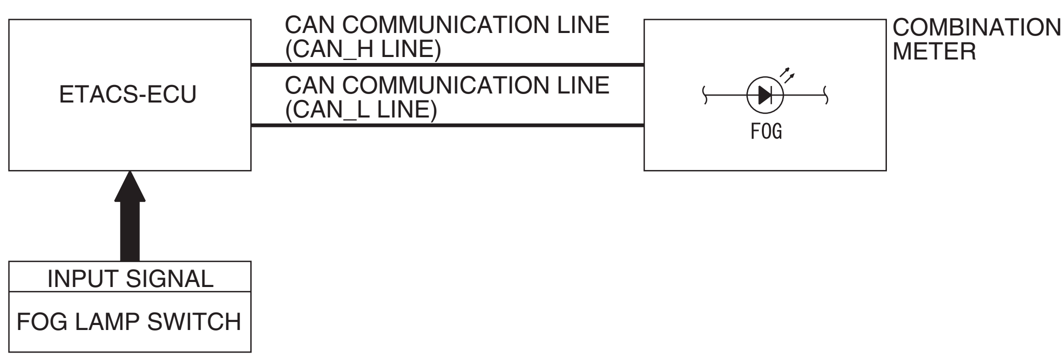
NO : Replace the fog lamp(s).

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INSPECTION PROCEDURE K-3: The fog lamp indicator does not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Fog Lamp Indicator Lamp Circuit



W4X54X045A

COMMENTS ON TROUBLE SYMPTOM

If the fog lamp indicator does not illuminate normally, connector(s), wiring harness in the CAN bus lines, the ETACS-ECU or the combination meter may be defective.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of the combination meter
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the fog lamps.

When the fog lamp switch is operated, check that the fog lamps illuminate/go off normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure K-2 "Any of the fog lamps does not illuminate P.54B-160."

Step 2. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 3. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the CAN bus line (Refer to GROUP 54D, Diagnosis P.54D-13).

Step 4. M.U.T.-III other system diagnosis code

Check whether the combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?
YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).
NO : Go to Step 5.

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Step 5. M.U.T.-III actuator test

Perform the actuator test for the combination meter, and check that the fog lamp indicator illuminates (Refer to GROUP 54A – Combination Meter P.54A-62).

Q: Is the check result normal?

YES : Replace the ETACS-ECU.

NO : Replace the combination meter.

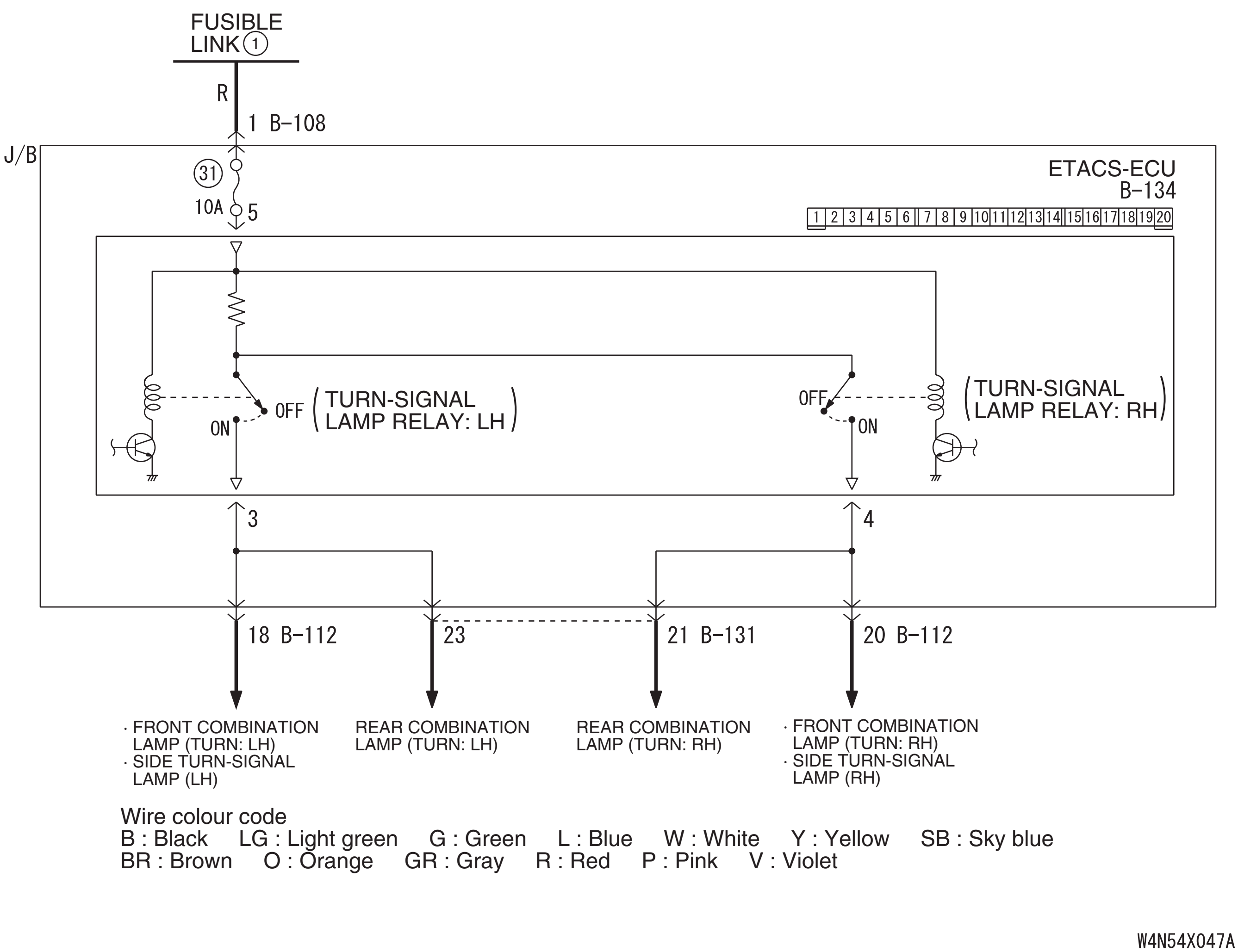
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FLASHER TIMER

INSPECTION PROCEDURE L-1: The turn-signal lamps do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Turn-Signal Lamp Power Supply Circuit



COMMENTS ON TROUBLE SYMPTOM

If all the turn-signal lamps do not illuminate, the ignition switch (IG1), the turn-signal lamp switch input circuit or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

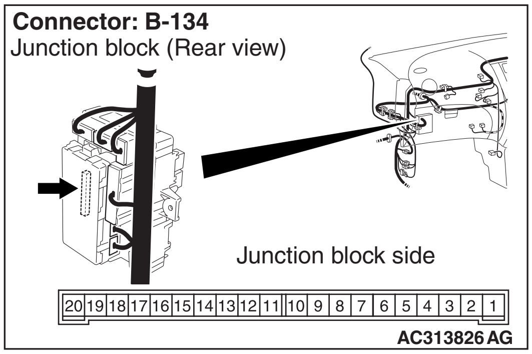
DIAGNOSIS PROCEDURE

Step 1. Check that the hazard warning lamps operate.

Check that the hazard warning lamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 2.

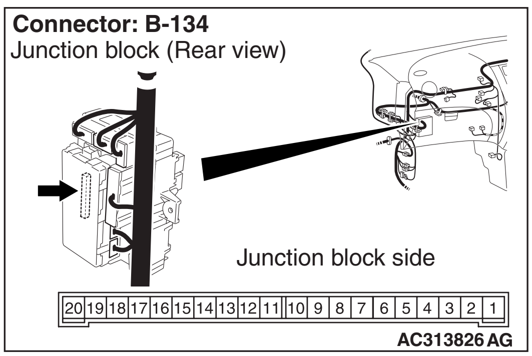
Step 2. Connector check: B-134 ETACS-ECU connector.



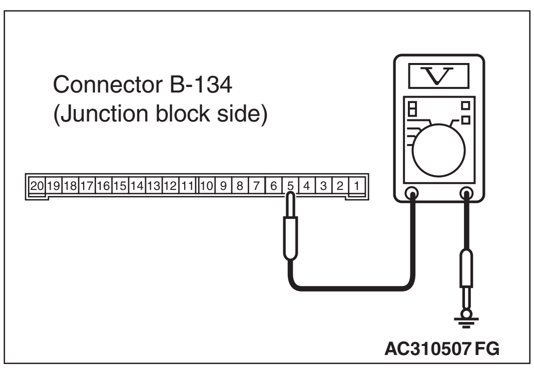
Q: Is the check result normal?

YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Voltage measurement at the B-134 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.



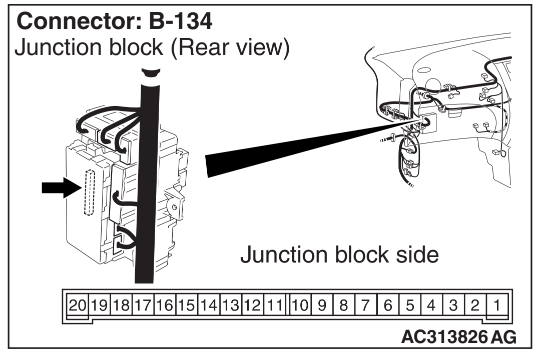
(2) Voltage between B-134 ETACS-ECU connector terminal No.5 and body earth

OK:System voltage

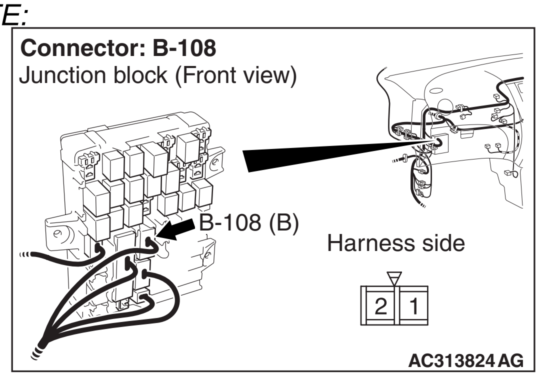
Q: Is the check result normal?

YES : . Go to Step 5.
NO : . Go to Step 4.

Step 4. Check the wiring harness between B-134 ETACS-ECU connector terminal No.5 to the fusible link (1).



NOTE:



Prior to the wiring harness inspection, check junction block connector B-108, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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Step 5. Pulse check

Check the input signals below, which are related to the turn-signal lamp illumination.

System switch	Check condition
Turn-signal lamp switch (RH)	When the turn-signal lamp switch (RH) is turned from off to on
Turn-signal lamp switch (LH)	When the turn-signal lamp switch (LH) is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally. : Go to Step 6.

The turn-signal lamp switch (RH) signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

The turn-signal lamp switch (LH) signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-206."

Step 6. Retest the system.

Check that the turn-signal lamps illuminate.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

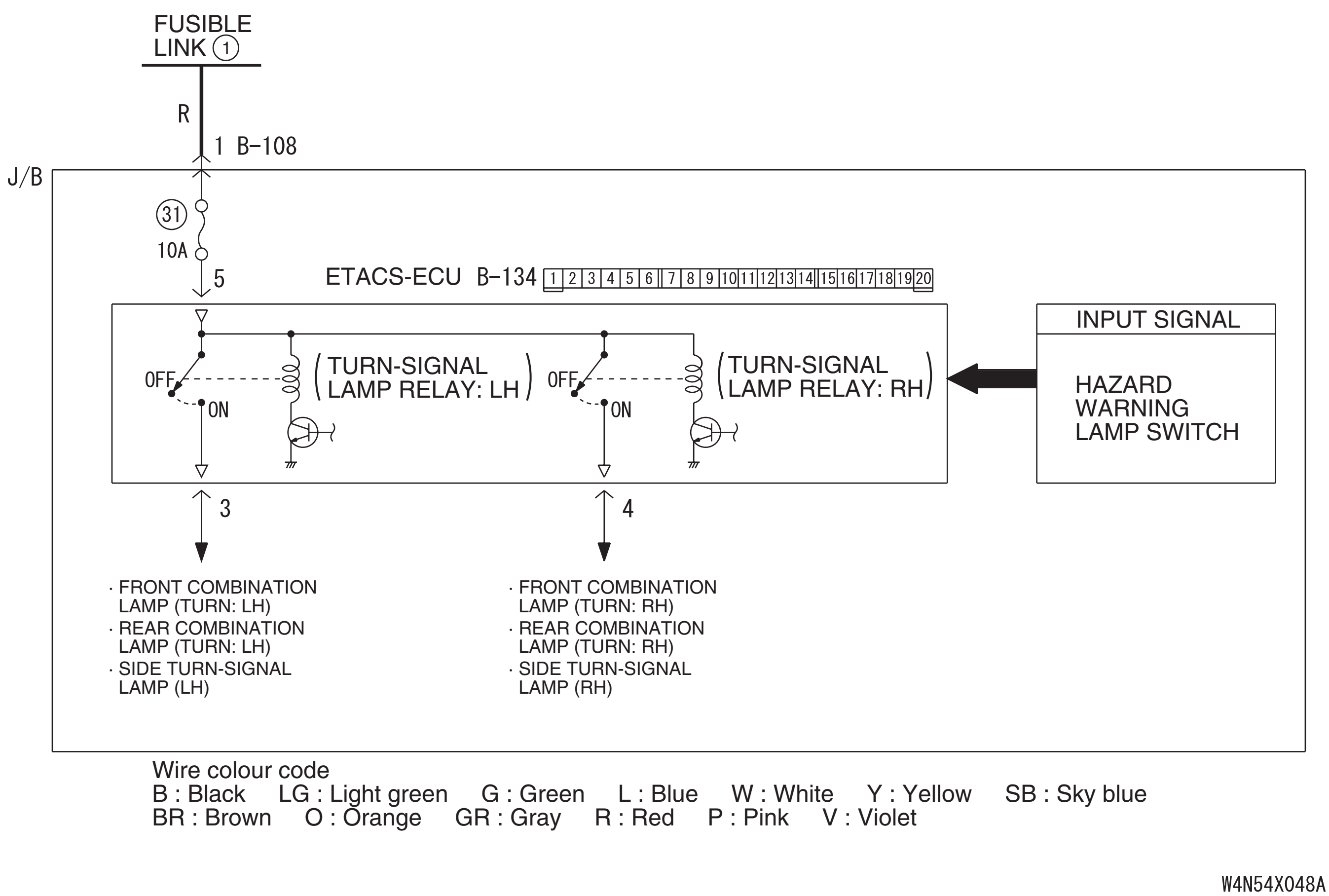
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE L-2: The hazard warning lamps do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Hazard Warning Lamp Circuit



COMMENTS ON TROUBLE SYMPTOM

If the hazard warning lamps do not illuminate, the hazard warning lamp input signal circuit or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check that the turn-signal lamps operate.

Check that the turn-signal lamps illuminate normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure L-1 "The turn signal lamps do not illuminate P.54B-166."

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Step 2. Check the power supply circuit.

When the ignition switch is at the LOCK (OFF) position, check that the functions below work normally.

- Lamp reminder function
- Central door locking system
- Room lamp (excluding interior lamp automatic-shutdown function)

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 3. Pulse check

Check the input signal from the hazard warning lamp switch.

System switch	Check condition
Hazard warning lamp switch	When the hazard warning lamp switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to Inspection Procedure N-9 "The hazard warning lamp switch signal is not received P.54B-216."

Step 4. Retest the system.

Check that the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

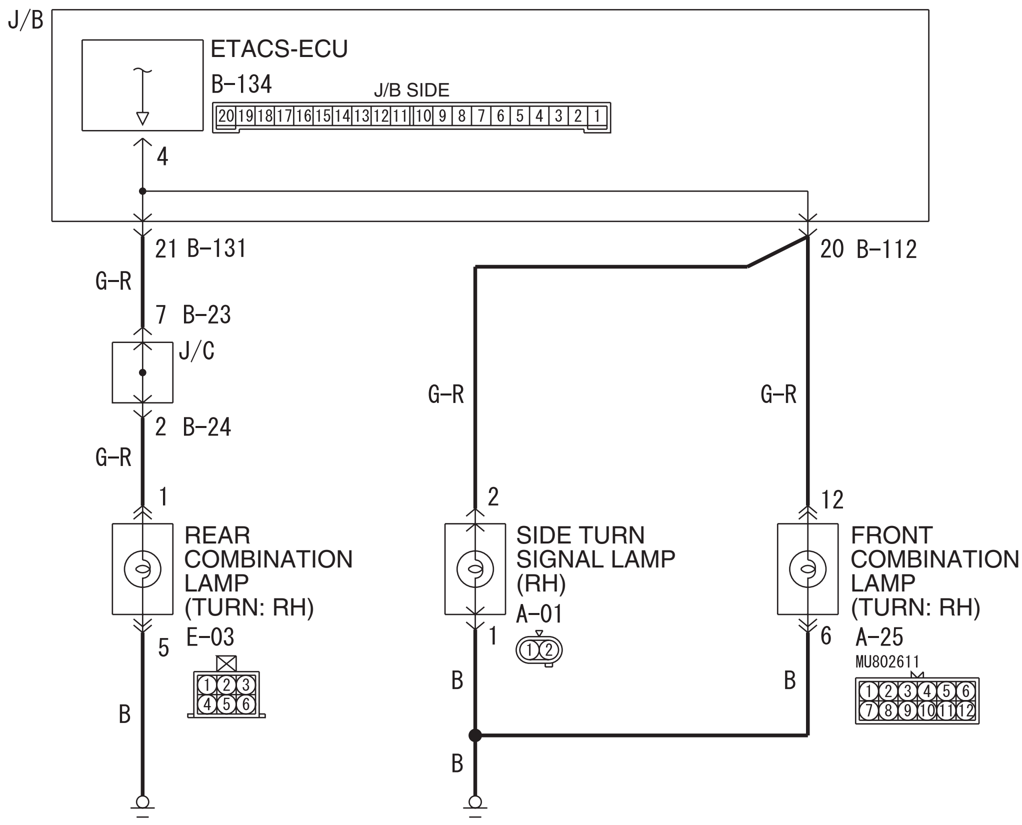
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE L-3: Any of the turn-signal lamps does not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

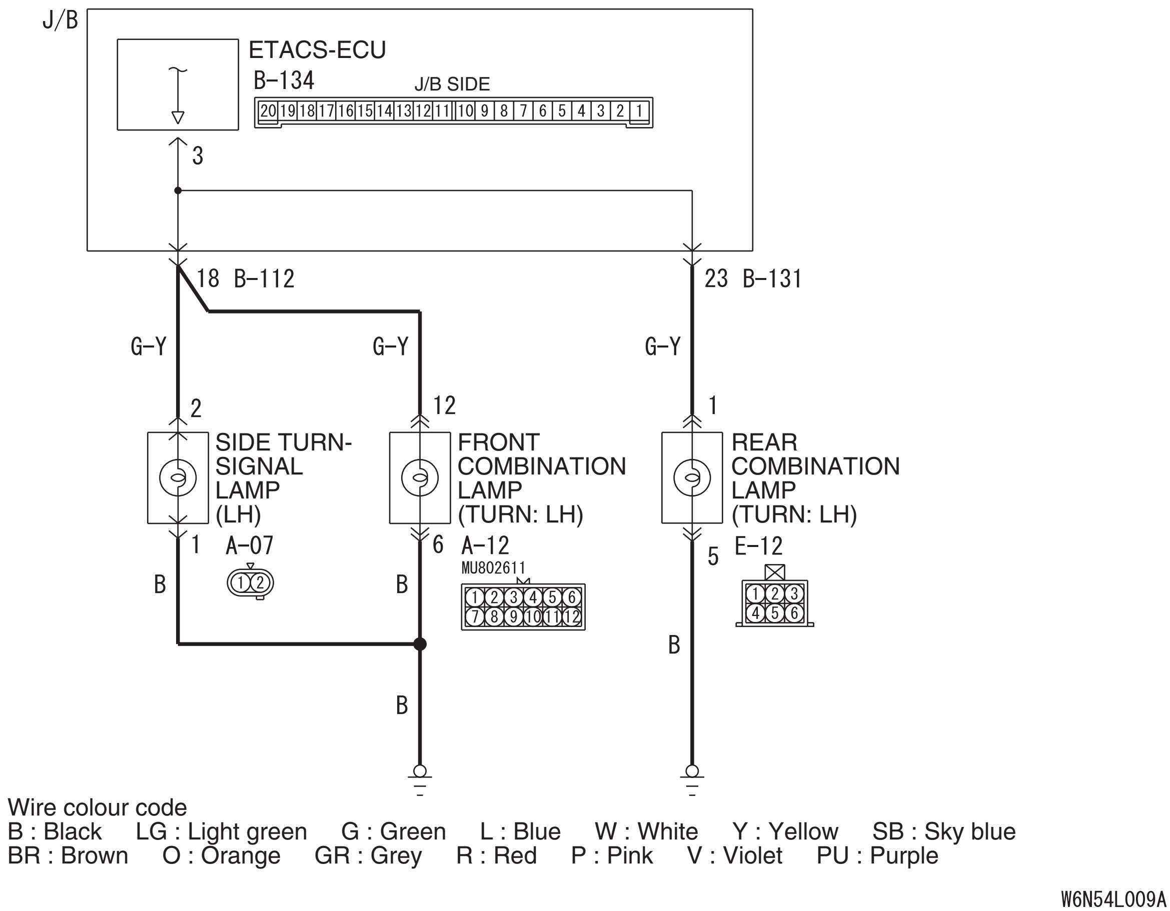
Turn-Signal Lamps Circuit (RH)



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W6N54L008A

Turn-Signal Lamps Circuit (LH)



COMMENTS ON TROUBLE SYMPTOM

If any of the turn-signal lamp does not illuminate normally, wiring harness connector(s) or the bulb may be defective.

POSSIBLE CAUSES

- Defective front turn-signal lamp bulb
- Defective head lamp assembly
- Defective side turn-signal lamp
- Defective rear turn-signal lamp bulb
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

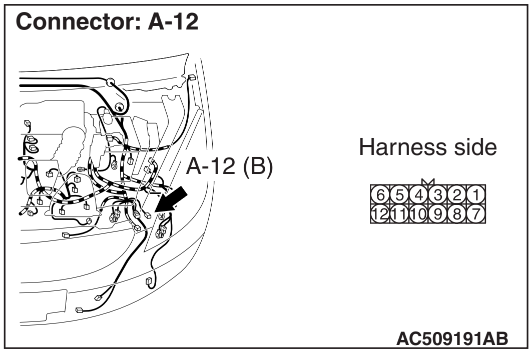
Step 1. Confirm which turn-signal lamp is defective.

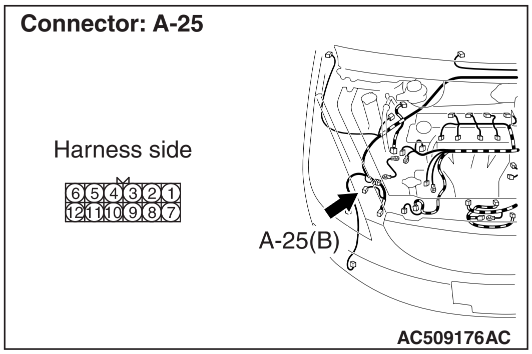
Q: Which turn-signal lamp fails to illuminate correctly?

Front turn-signal lamp : Go to Step 2.
Side turn-signal lamp : Go to Step 8.
Rear turn-signal lamp : Go to Step 14.

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Step 2. Connector check: A-25 <front combination lamp (turn: RH)> or A-12 <front combination lamp (turn: LH)> connector





Q: Are the check results normal?

YES : Go to Step 3.
NO : Repair the defective connector.

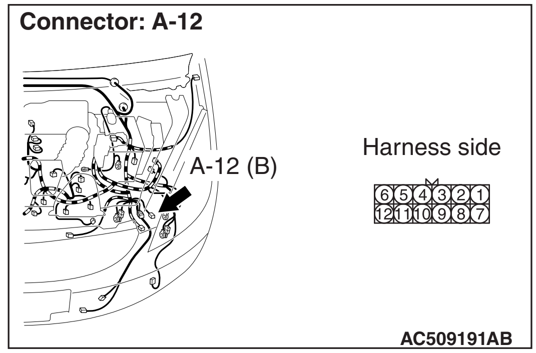
Step 3. Check the bulb(s) of the turn-signal lamps.

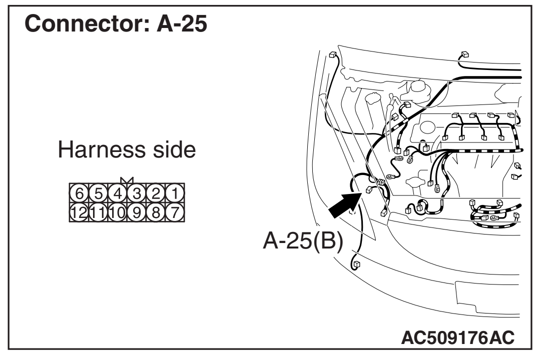
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?

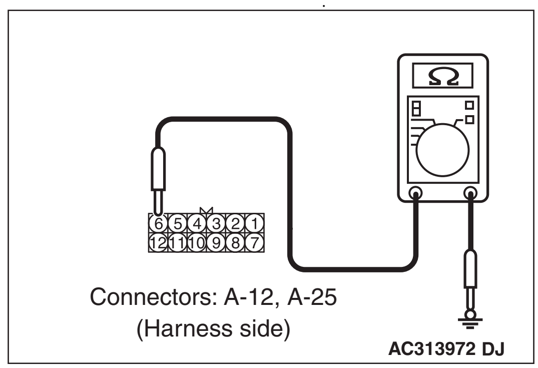
YES : Go to Step 4.
NO : Replace the bulb(s) of the defective lamp.

Step 4. Resistance measurement at A-25 <front combination lamp (turn: RH)> or A-12 <front combination lamp (turn: LH)> connector





(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the defective lamp connector terminal and body earth.



Resistance between A-25 <front combination lamp (turn: RH)> connector or A-12 <front combination lamp (turn: LH)> connector terminal No.6 and body earth

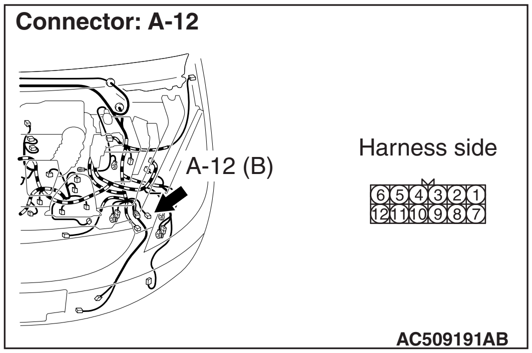
OK: Continuity exists (2 Ω or less)

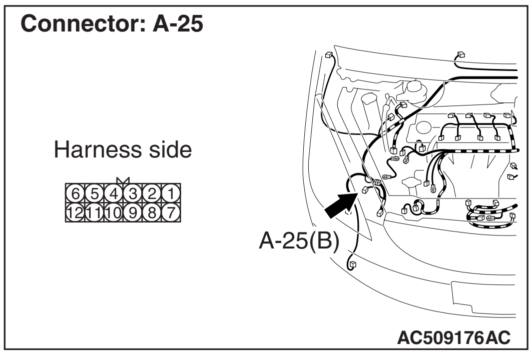
Q: Is the check result normal?

YES : Go to Step 6.
NO : Go to Step 5.

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Step 5. Check the wiring harness from A-25 <front combination lamp (turn: RH)> or A-12 <front combination lamp (turn: LH)> connector terminal No.6 and body earth.

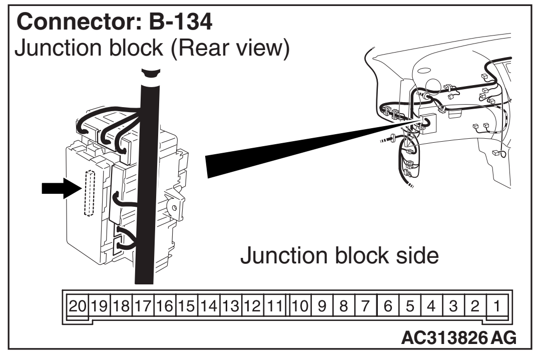




- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the wiring harness.

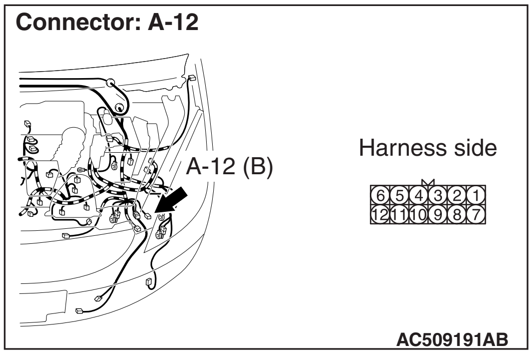
Step 6. Connector check: B-134 ETACS-ECU connector

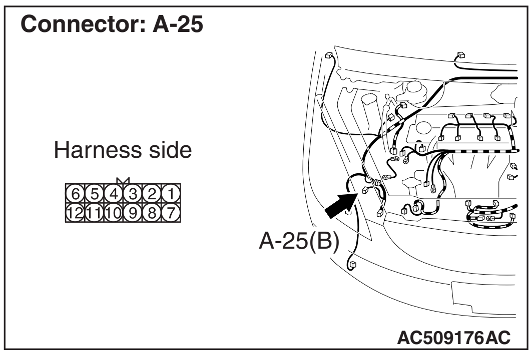


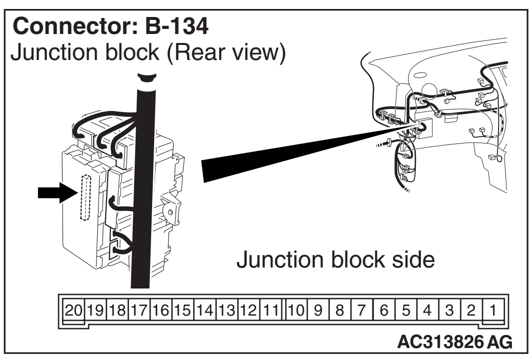
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

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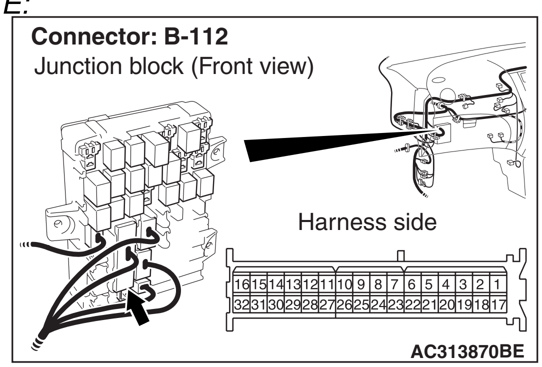
Step 7. Check the wiring harness from A-25 <front combination lamp (turn: RH)> connector or A-12 <front combination lamp (turn: LH)> connector terminal No.12 and B-134 ETACS-ECU connector terminal No.4 (RH) or No.3 (LH).







NOTE:



Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

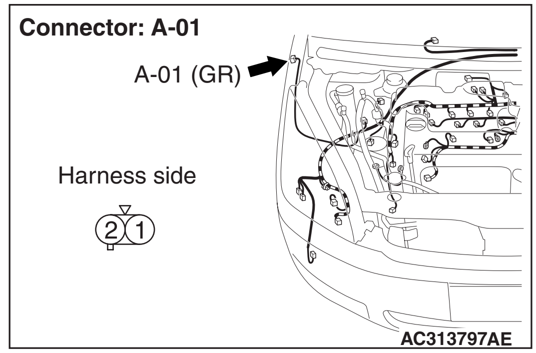
- Check the output lines for open circuit.

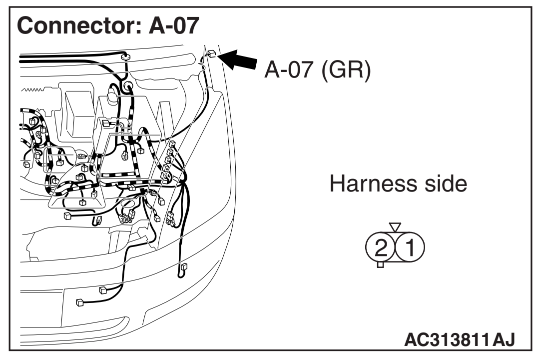
Q: Is the check result normal?

YES : Go to Step 20.

NO : Repair the wiring harness.

Step 8. Connector check: A-01 <side turn-signal lamp (RH)> or A-07 <side turn-signal lamp (LH)> connector





Q: Are the check results normal?

YES : Go to Step 9.

NO : Repair the defective connector.

Step 9. Check the bulb(s) of the turn-signal lamps.

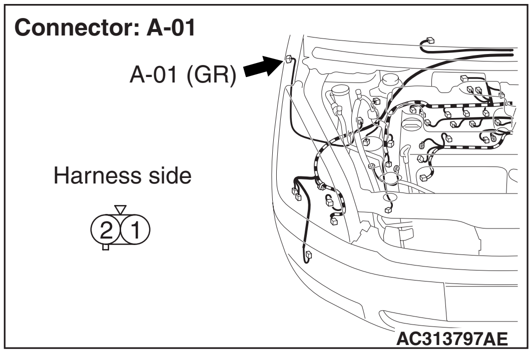
Check the bulb(s) of the defective lamp.

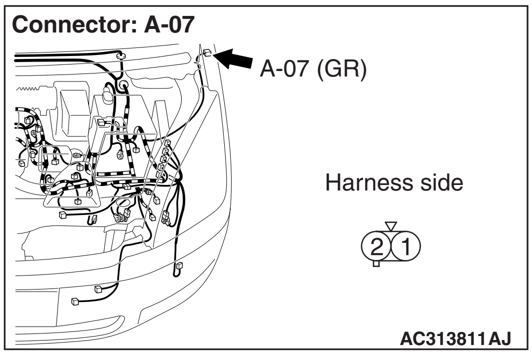
Q: Is the check result normal?

YES : Go to Step 10.

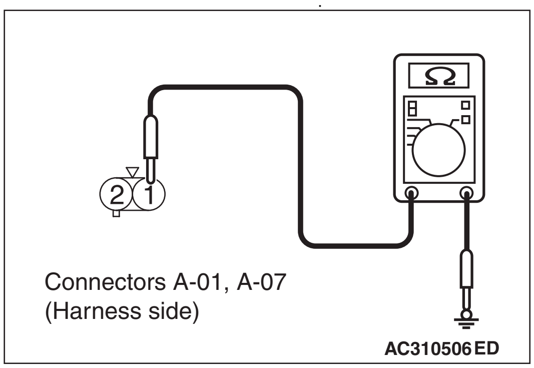
NO : Replace the bulb(s) of the defective lamp.

Step 10. Resistance measurement at A-01 <side turn-signal lamp (RH)> or A-07 <side turn-signal lamp (LH)> connector





(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the defective lamp connector terminal and body earth.

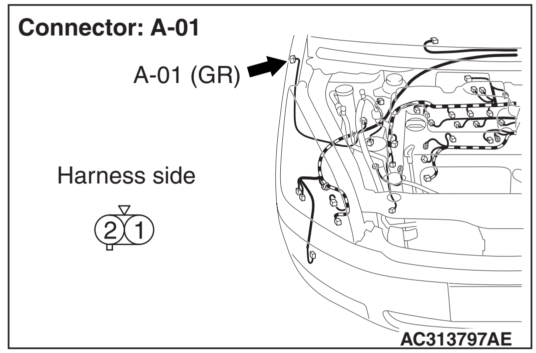


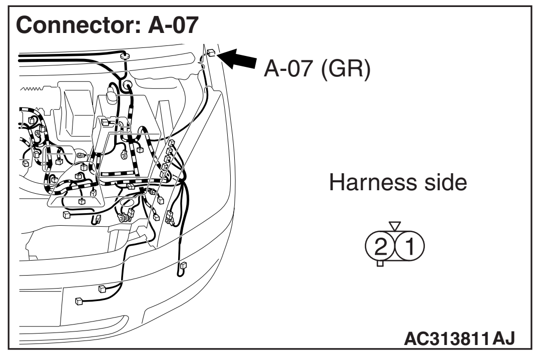
Resistance between A-01 <side turn-signal lamp (RH)> connector or A-07 <side turn-signal lamp (RH)> connector terminal No.1 and body earth

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 12.
NO : Go to Step 11.

Step 11. Check the wiring harness from A-01 <side turn-signal lamp (RH)> or A-07 <side turn-signal lamp (LH)> connector terminal No.1 and body earth.

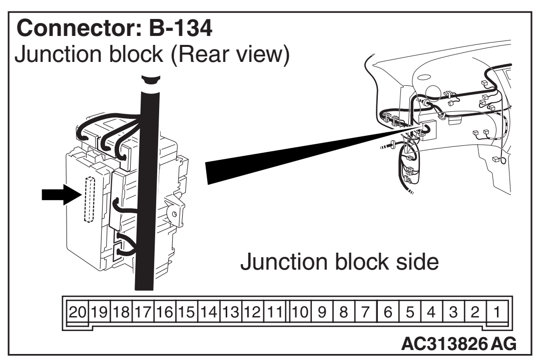




- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 12.
NO : Repair the wiring harness.

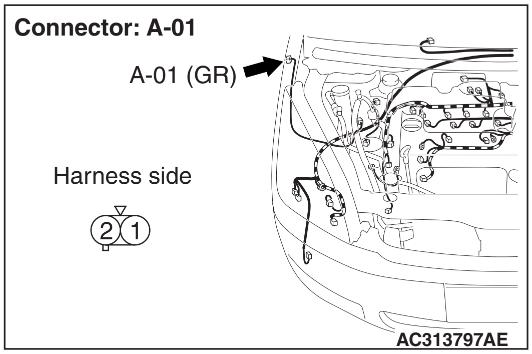
Step 12. Connector check: B-134 ETACS-ECU connector

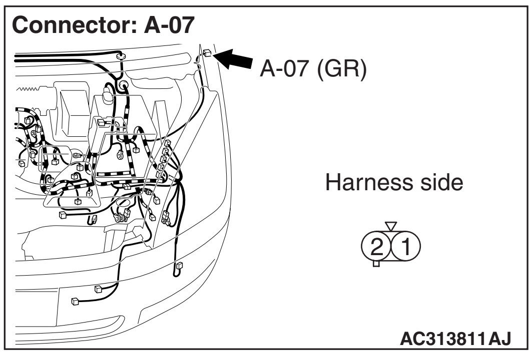


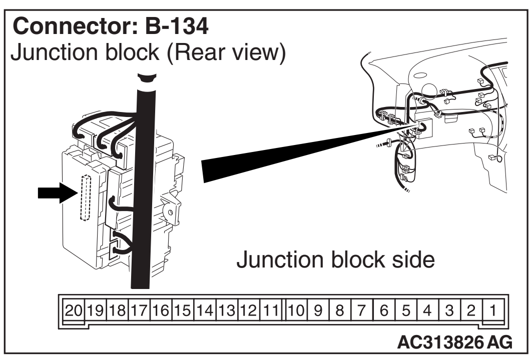
Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the defective connector.

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Step 13. Check the wiring harness from A-01 <side turn-signal lamp (RH)> connector or A-07 <side turn-signal lamp (LH)> connector terminal No.2 and B-134 ETACS-ECU connector terminal No.4 (RH) or No.3 (LH).

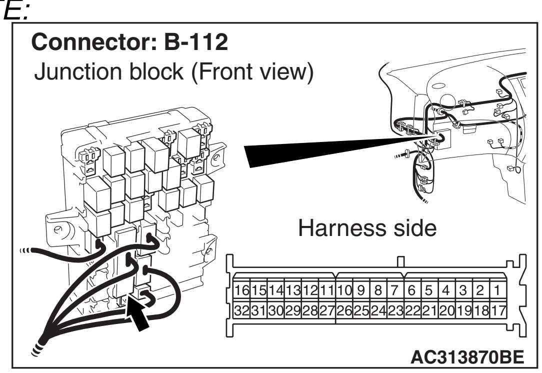






- Check the output lines for open circuit.

NOTE:

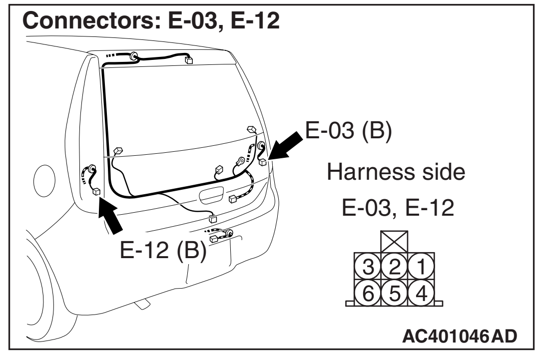


Prior to the wiring harness inspection, check junction block connector B-112, and repair if necessary.

Q: Is the check result normal?

YES : Go to Step 20.
NO : Repair the wiring harness.

Step 14. Connector check: E-03 <rear combination lamp (turn: RH)> or E-12 <rear combination lamp (turn: LH)> connector



Q: Are the check results normal?

YES : Go to Step 15.
NO : Repair the defective connector.

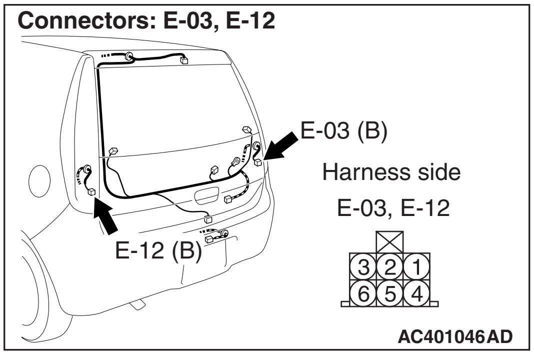
Step 15. Check the bulb(s) of the turn-signal lamps.

Check the bulb(s) of the defective lamp.

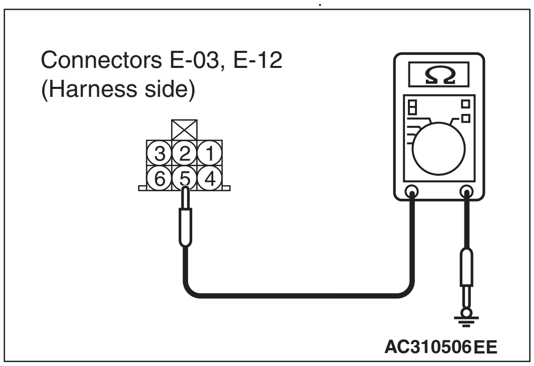
Q: Is the check result normal?

YES : Go to Step 16.
NO : Replace the bulb(s) of the defective lamp.

Step 16. Resistance measurement at E-03 <rear combination lamp (turn: RH)> or E-12 <rear combination lamp (turn: LH)> connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the defective lamp connector terminal and body earth.

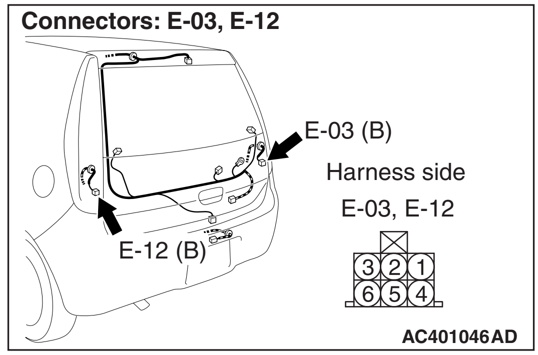


Resistance between E-03 <rear combination lamp (turn: RH)> connector or E-12 <rear combination lamp (turn: LH)> connector terminal No.5 and body earth

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 18.
NO : Go to Step 17.

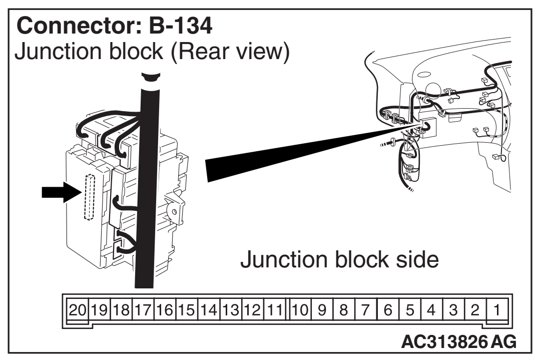
Step 17. Check the wiring harness from E-03 <rear combination lamp (turn: RH)> or E-12 <rear combination lamp (turn: LH)> connector terminal No.5 and body earth.



- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 18.
NO : Repair the wiring harness.

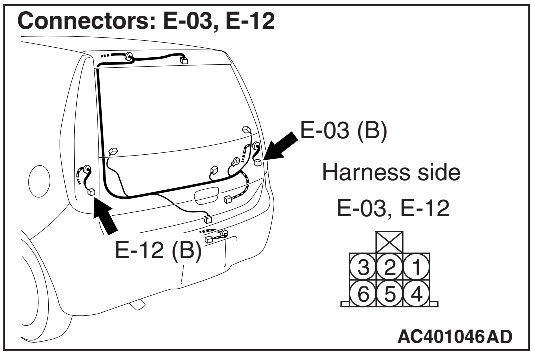
Step 18. Connector check: B-134 ETACS-ECU connector

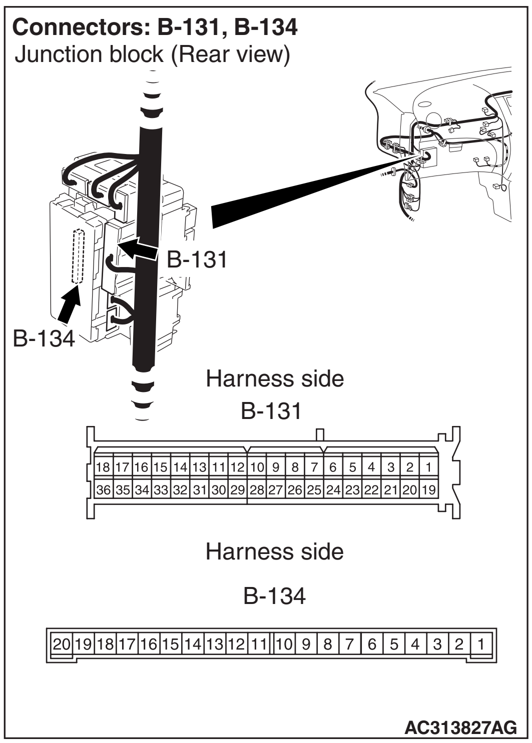


Q: Is the check result normal?
YES : Go to Step 19.
NO : Repair the defective connector.

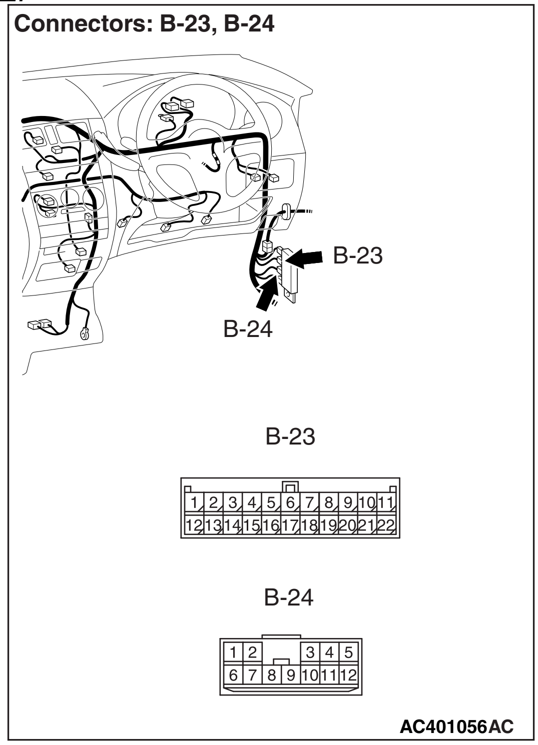
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Step 19. Check the wiring harness from E-03 <rear combination lamp (turn: RH)> connector or E-12 <rear combination lamp (turn: LH)> connector terminal No.1 and B-134 ETACS-ECU connector terminal No.4 (RH) or No.3 (LH).





NOTE:



Prior to the wiring harness inspection, check junction block connector B-131, and joint connector B-23 (RH), B-24 (RH), and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 20.

NO : Repair the wiring harness.

Step 20. Retest the system.

Check that the turn-signal lamps.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

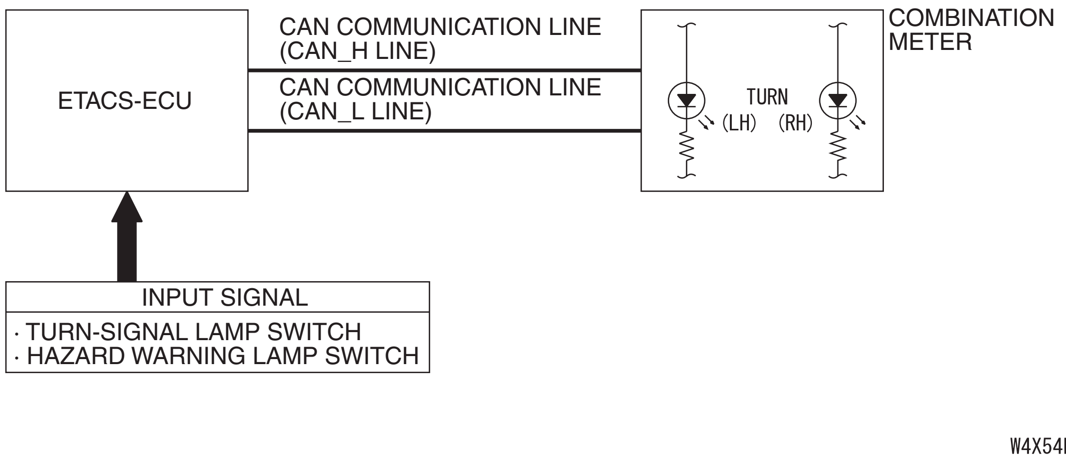
NO : Replace the rear turn-signal lamp assembly.

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INSPECTION PROCEDURE L-4: The turn-signal indicator lamp does not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Turn-Signal Indicator Lamp Circuit



COMMENTS ON TROUBLE SYMPTOM

If the turn-signal indicator lamp does not illuminate normally, connector(s), wiring harness in the CAN bus lines, the ETACS-ECU or the combination meter may be defective.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of the combination meter
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check that the hazard warning lamps operate.

Check that the hazard warning lamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure L-2 "The hazard warning lamps do not illuminate normally P.54B-169."

Step 2. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 3. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the CAN bus line (Refer to GROUP 54D, Diagnosis P.54D-13).

Step 4. M.U.T.-III other system diagnosis code.

Check whether the combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?
YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).
NO : Go to Step 5.

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Step 5. M.U.T.-III actuator test

Perform the actuator test for the combination meter, and check that the turn-signal indicator lamps illuminate (Refer to GROUP 54A – Combination Meter P.54A-62).

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Replace the combination meter.

INSPECTION PROCEDURE L-5: The turn-signal lamps do not illuminate when the ignition switch is at the ACC position.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the turn-signal lamps do not illuminate with the ignition switch at ACC, the input signal circuit from the ignition switch (ACC) may be defective or the SWS monitor customisation function has set "TURN-SIGNAL" TO "IG-ON".

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check that the turn-signal lamps operate.

Check that the turn-signal lamps illuminate normally when the ignition switch is turned to the ON position.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection Procedure L-1 "The turn-signal lamps do not illuminate normally P.54B-166."

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Step 2. Pulse check

Check the input signals below, which are related to the turn-signal lamp operation sound function.

System switch	Check conditions
Ignition switch (IG1)	When turned from ACC to ON
Turn-signal lamp switch (RH)	When the turn-signal lamp switch (RH) is turned from off to on
Turn-signal lamp switch (LH)	When the turn-signal lamp switch (LH) is turned from off to on
Hazard warning lamp switch	When the hazard warning lamp switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Are the check result normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received" P.54B-202.

The turn-signal lamp switch (RH) signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received" P.54B-206.

The turn-signal lamp switch (LH) signal is not received. : Refer to Inspection Procedure N-4 "The column switch (lighting and turn-signal lamp switch) signal is not received" P.54B-206.

The hazard warning lamp switch signal is not received. : Refer to Inspection Procedure N-9 "The hazard warning lamp switch signal is not received" P.54B-216.

Step 3. Customize function by using the SWS monitor

Use the SWS monitor customisation function to confirm that "TURN-SIGNAL" is set to "IG-ACC."

⚠ **CAUTION**

The SWS monitor must be used in order to confirm and change that setting. Use the SWS monitor to confirm and/or change the customised function.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Set "TURN SIGNAL" to "IG-ACC" by using the SWS monitor customisation function (Refer to GROUP 54C, Customize function P.54C-240).

Step 4. Retest the system.

Check whether the turn-signal lights illuminate.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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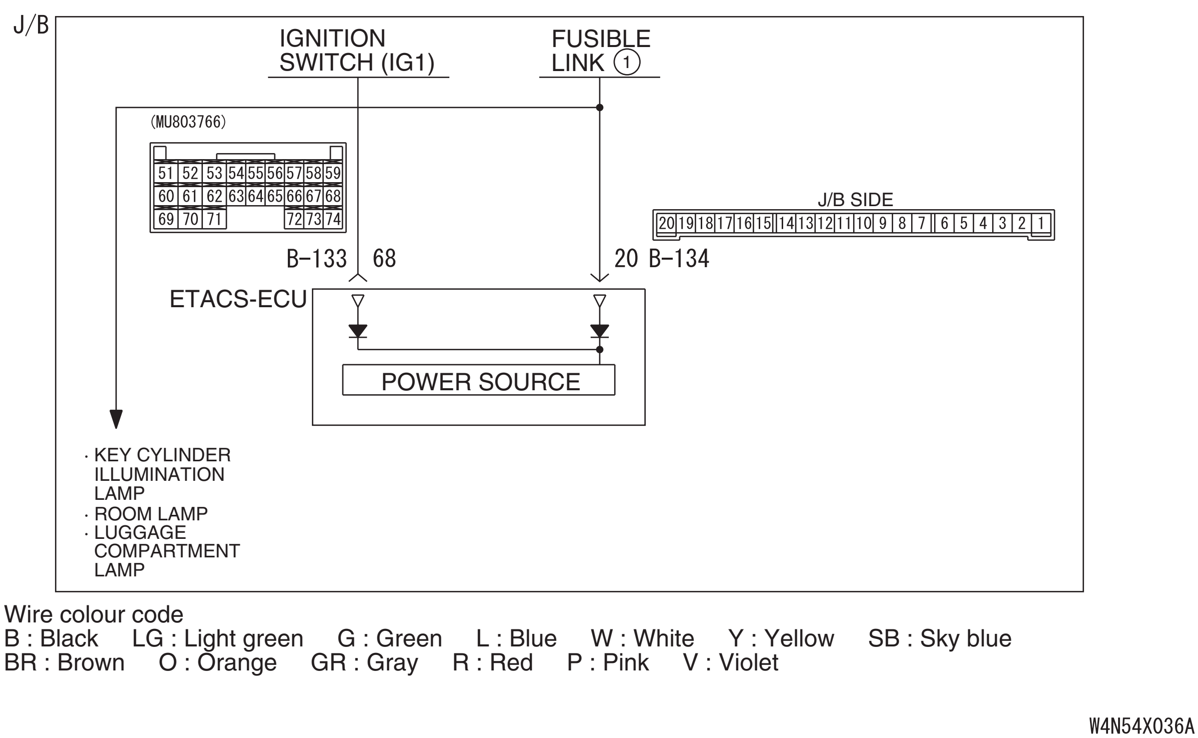
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INTERIOR LAMP

INSPECTION PROCEDURE M-1: The interior lamps (room ramp, luggage compartment lamp) does not illuminate or extinguish normally.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Interior Lamp Circuit



COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates the interior lamps (room lamp, luggage compartment lamp) in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- All of the door switches
- Driver's door lock actuator

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective. Alternatively, it is possible that "RM LMP TN OFF" was set to "W/O FUNCTION" by using the SWS monitor customisation function.

POSSIBLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of the driver's door lock actuator
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 2. Pulse check

Check the input signals below, which are related to the interior lamps (room lamp, luggage compartment lamp).

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Key reminder switch	When the inserted ignition key is pulled out
All of the door switches	A door is opened when all the doors are closed
Driver's door lock actuator switch	When the driver's door is unlocked or locked

OK: The M.U.T.-II sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

The key reminder switch signal is not received. : Refer to Inspection Procedure N-7 "The key reminder switch signal is not received P.54B-210."

All the door switch signals are not received. : Refer to Inspection Procedure N-10 "All the door switch signals are not received P.54B-219."

The driver's door lock actuator switch signal is not received. : Refer to Inspection Procedure N-11 "The driver's door lock actuator switch signal is not received P.54B-223."

Step 3. Retest the system.

When the room lamp and the luggage compartment lamp switches are set to the DOOR or ON position, the room lamp and the luggage compartment lamp should illuminate normally.

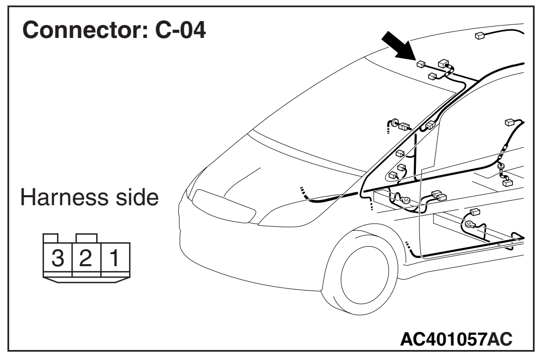
Q: Is the check result normal?

The lamp illuminates at neither the ON or DOOR position. : Go to Step 4.

The lamp does not illuminate at the DOOR position. : Go to Step 6.

The lamp does not illuminate at the ON position. : Go to Step 8.

Step 4. Connector check: C-04 room lamp connector



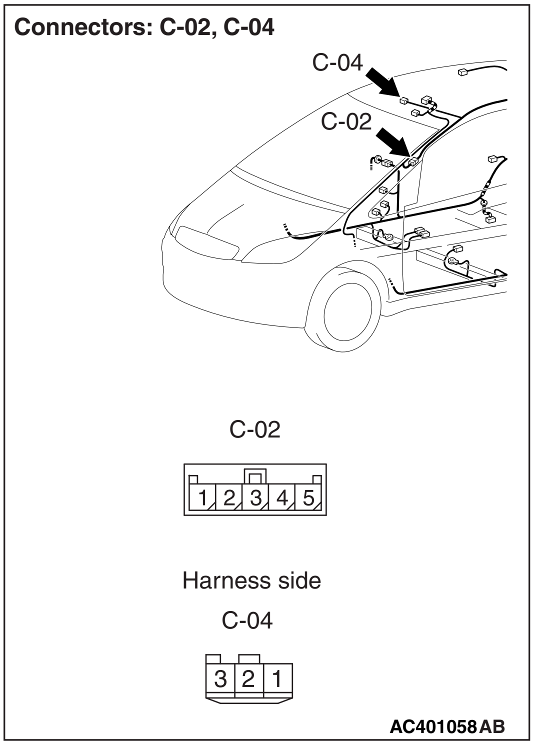
Q: Is the check result normal?

YES : Go to Step 5.

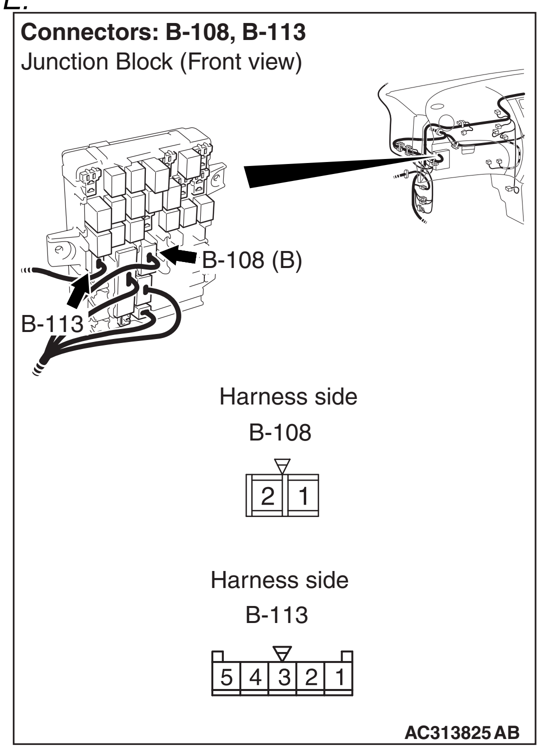
NO : Repair the defective connector.

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Step 5. Check the wiring harness from C-04 room lamp connector terminal No.3 to fusible link (1).



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-108 and B-113 repair if necessary.

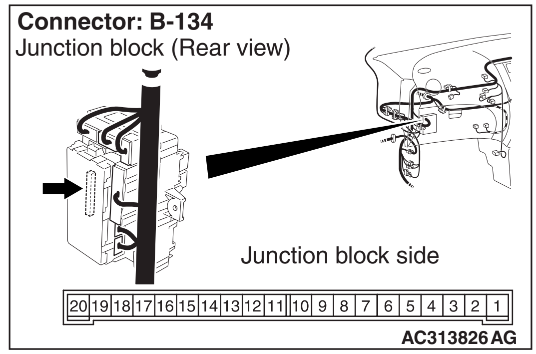
- Check the power supply line for open circuit.

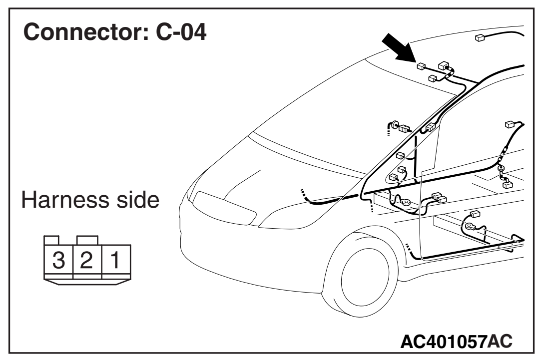
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 6. Connector check: B-134 ETACS-ECU connector, C-04 room lamp connector





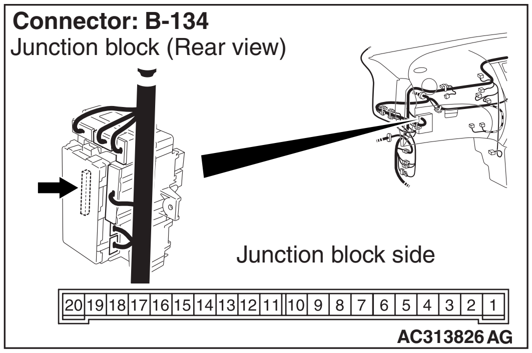
Q: Is the check result normal?

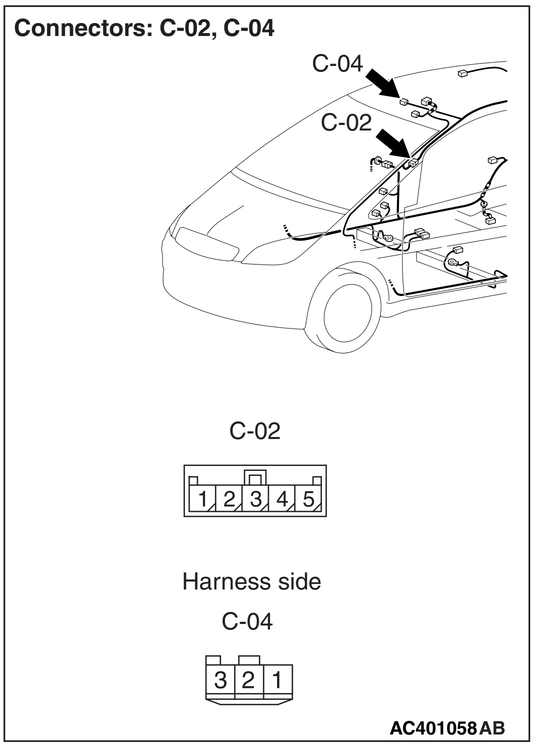
YES : Go to Step 7.

NO : Repair the defective connector.

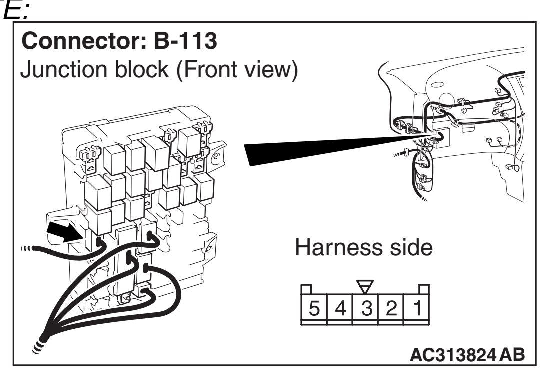
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Step 7. Check the wiring harness from B-134 ETACS-ECU connector terminal No.18 to C-04 room lamp connector terminal No.1





NOTE:



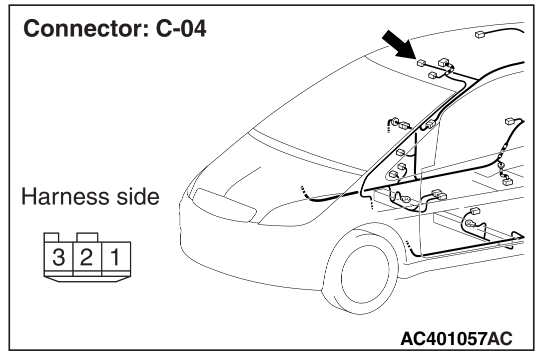
Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-113 repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Repair the wiring harness.

Step 8. Connector check: C-04 room lamp connector

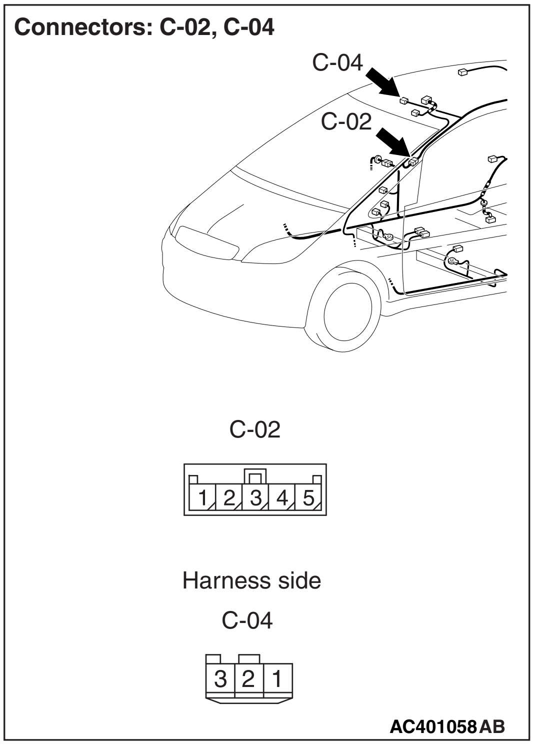


Q: Is the check result normal?

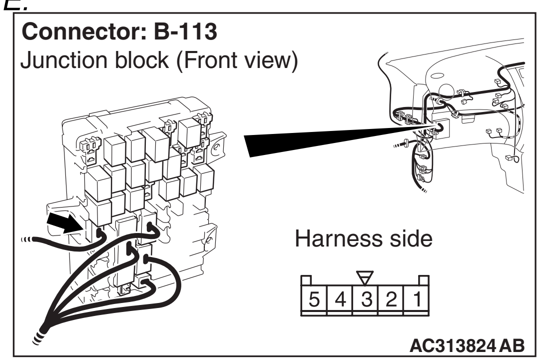
YES : Go to Step 9.
NO : Repair the defective connector.

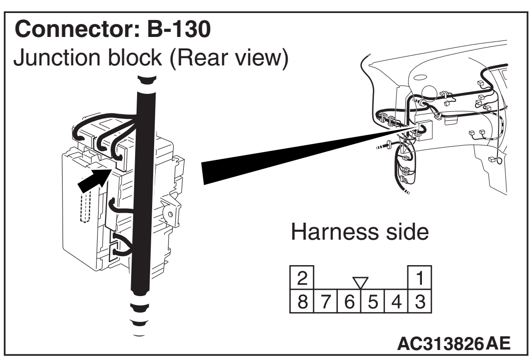
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Step 9. Check the wiring harness from C-04 room lamp connector terminal No.2 to body earth.



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-113 and B-130 repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : Go to Step 10.
NO : Repair the wiring harness.

Step 10. Check the SWS monitor customised function.

Use the SWS monitor customise function to confirm that "RM LMP TN OFF" is set to other than "W/O FUNCTION".

⚠ **CAUTION**

The SWS monitor must be used in order to confirm and change that setting. Use the SWS monitor to confirm and/or change the customised function.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Use the SWS monitor customise function to set the "RM LMP TN OFF" to other than "W/O FUNCTION" (Refer to GROUP 54C – Customize function P.54C-240).

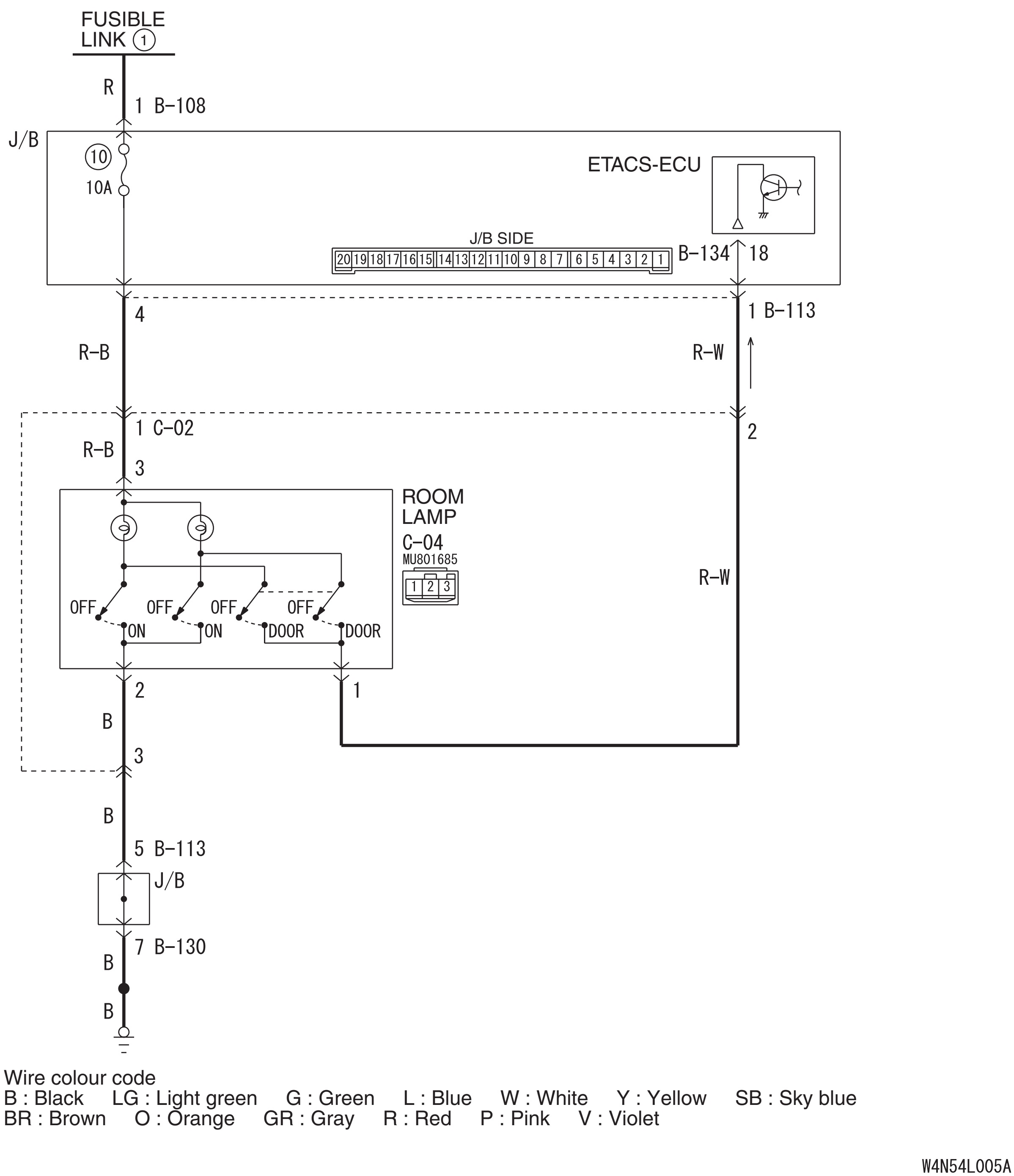
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INSPECTION PROCEDURE M-2: The room lamp does not illuminate normally.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Room Lamp Circuit



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COMMENTS ON TROUBLE SYMPTOM

If the room lamp do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

POSSIBLE CAUSES

- Malfunction of the room lamp
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check that the luggage compartment lamp illuminates.

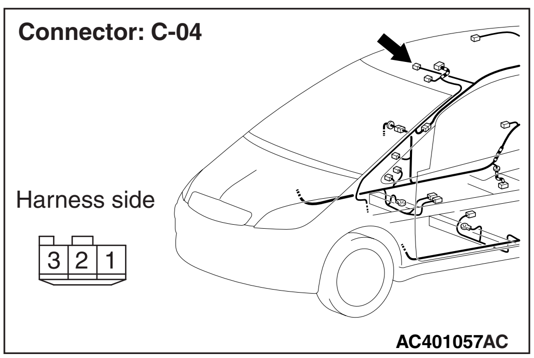
Check that the luggage compartment lamp illuminates normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure M-1 "The interior lamps (room ramp, luggage compartment lamp) does not illuminate or extinguish normally P.54B-183."

Step 2. Connector check: C-04 room lamp connector



Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Check the bulb.

Check whether the room lamp bulb is normal.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the bulb(s) of the defective lamp.

Step 4. Check the room lamp.

Check whether the room lamp is normal.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the room lamp.

Step 5. Determine a trouble spot.

Q: Which switch position (DOOR or ON) does the room lamp illuminate at?

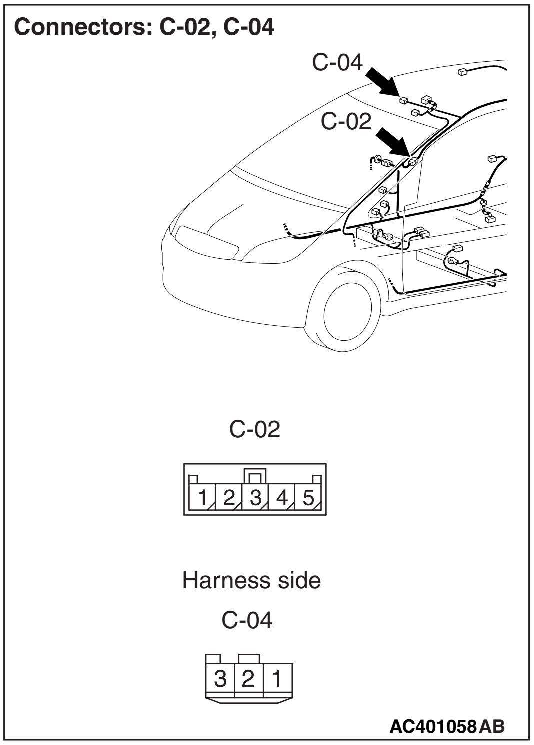
The lamp illuminates at neither the ON or DOOR position. : Go to Step 6.

The lamp illuminates at the DOOR position. : Go to Step 7.

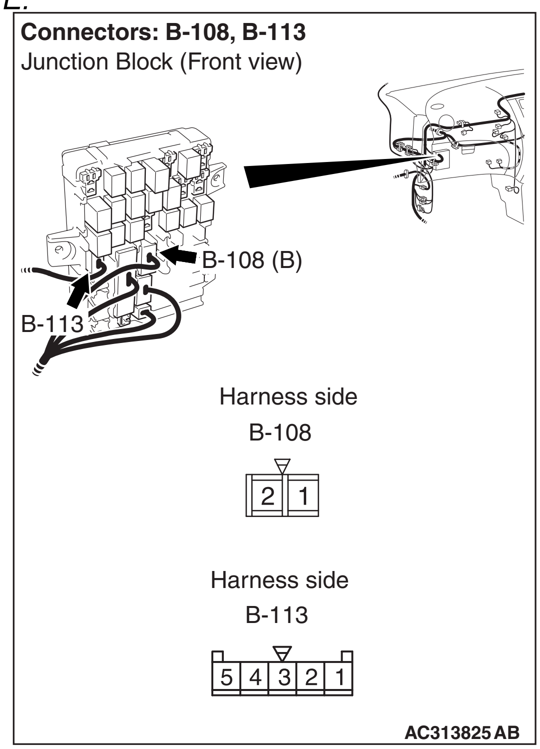
The lamp illuminates at the ON position. : Go to Step 9.

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Step 6. Check the wiring harness from C-04 room lamp connector terminal No.3 to fusible link (1).



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-108 and B-113 repair if necessary.

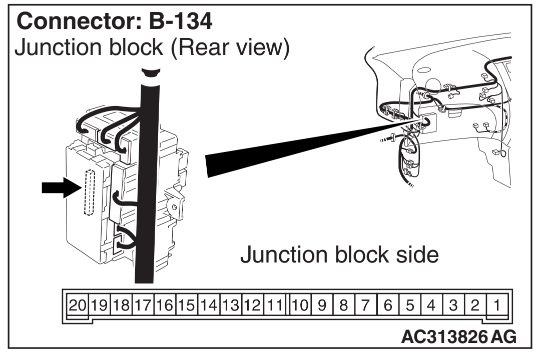
- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 7. Connector check: B-134 ETACS-ECU connector

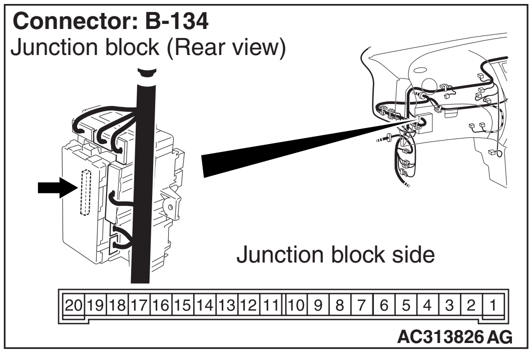


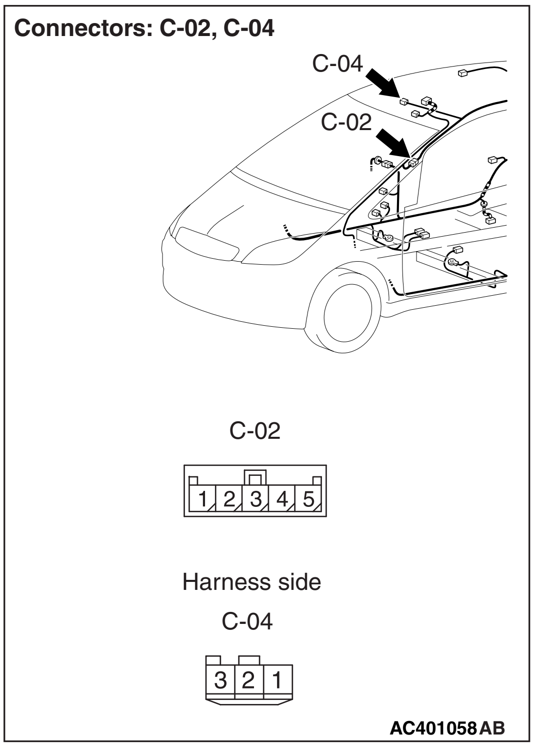
Q: Is the check result normal?

YES : Go to Step 8.

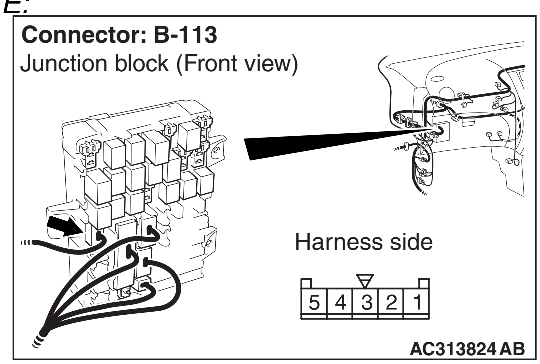
NO : Repair the defective connector.

Step 8. Check the wiring harness from B-134 ETACS-ECU connector terminal No.18 to C-04 room lamp connector terminal No.1





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-113 repair if necessary.

- Check the input and output lines for open circuit.

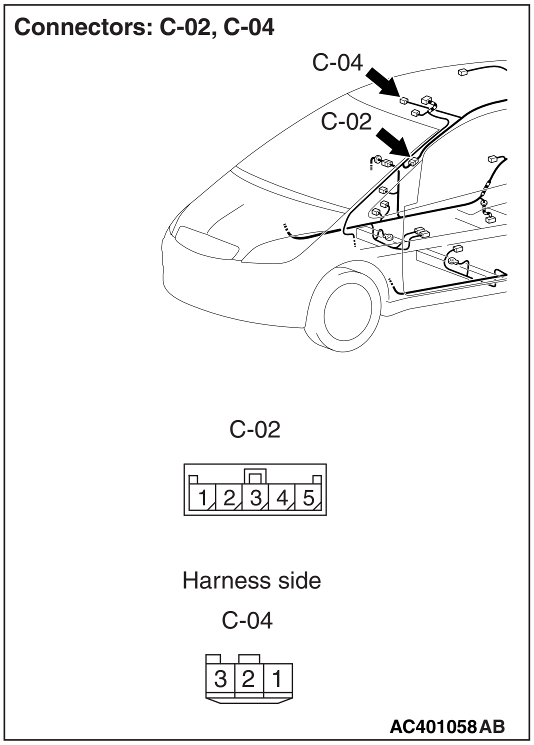
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

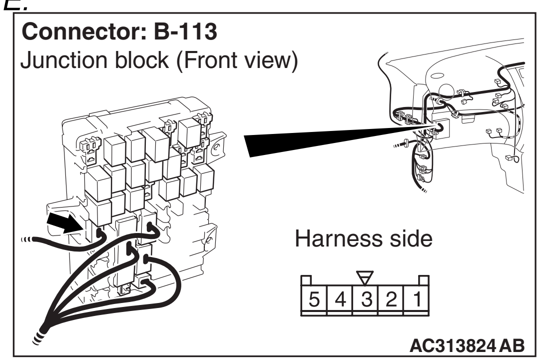
NO : Repair the wiring harness.

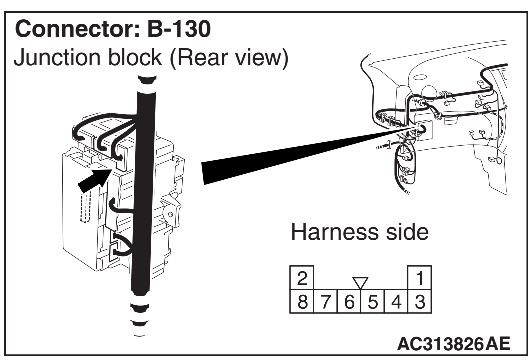
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Step 9. Check the wiring harness from C-04 room lamp connector terminal No.2 to body earth.



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-113 and B-130 repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

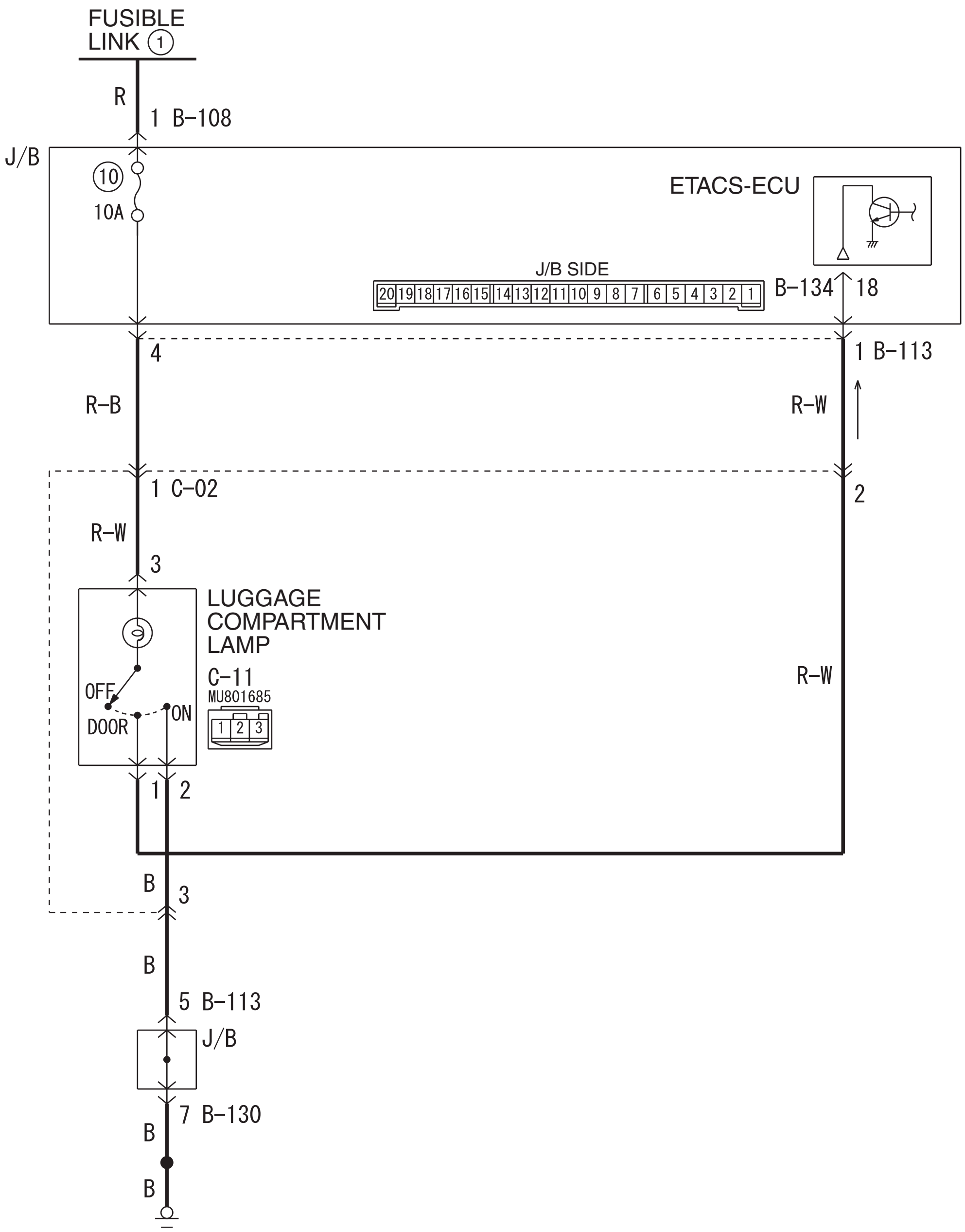
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INSPECTION PROCEDURE M-3: The luggage compartment lamp does not illuminate normally.

⚠ **CAUTION**

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Luggage Room Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W4N54L004A

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COMMENTS ON TROUBLE SYMPTOM

If the luggage compartment lamp do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

POSSIBLE CAUSES

- Malfunction of the luggage compartment lamp
- Damaged harness wires and connectors

Step 1. Check if the room lamp illuminates.

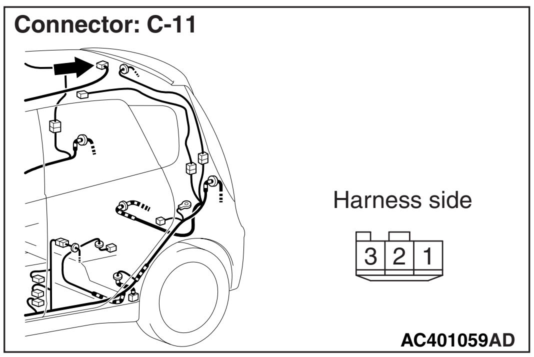
Check whether the room lamp illuminates normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure M-1 "The interior lamps (room ramp, luggage compartment lamp) does not illuminate or extinguish normally P.54B-183."

Step 2. Connector check: C-11 luggage compartment lamp connector



Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Check the bulb.

Check that the luggage compartment lamp bulb is not blown.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the luggage compartment lamp bulb.

Step 4. Check the luggage compartment lamp.

Check whether the luggage compartment lamp illuminates normally.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the luggage compartment lamp.

Step 5. Determine a trouble spot.

Q: Which switch position (DOOR or ON) does the luggage compartment lamp illuminate at?

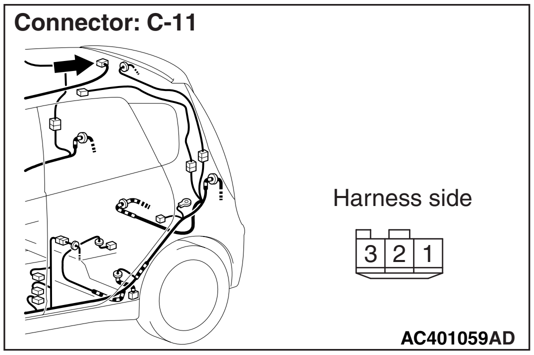
The lamp illuminates at neither the ON or DOOR position. : Go to Step 6.

The lamp illuminates at the DOOR position. : Go to Step 7.

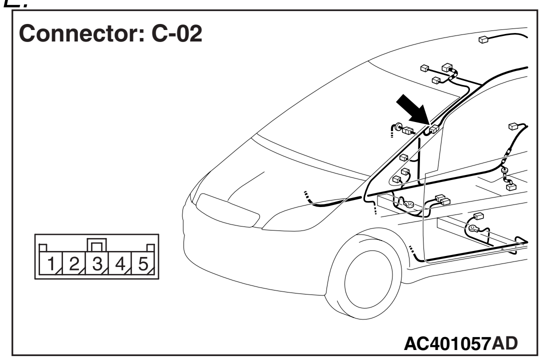
The lamp illuminates at the ON position. : Go to Step 9.

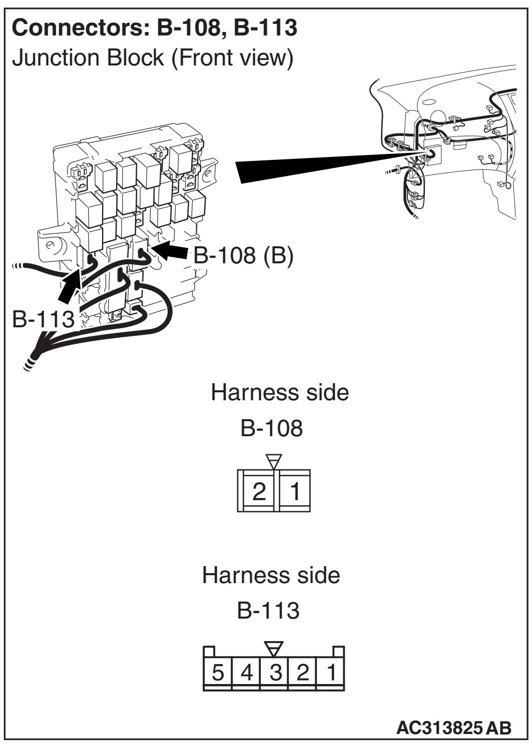
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Step 6. Check the wiring harness from C-11 luggage compartment lamp connector terminal No.3 to fusible link (1).



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-108 and B-113 repair if necessary.

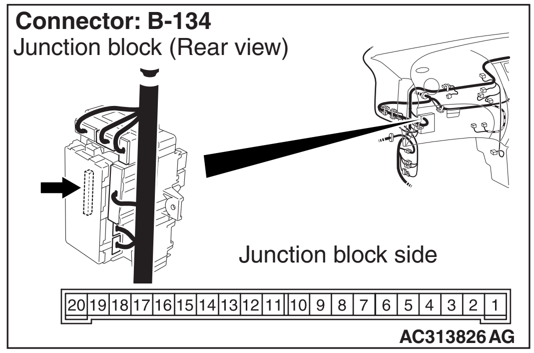
- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 7. Connector check: B-134 ETACS-ECU connector



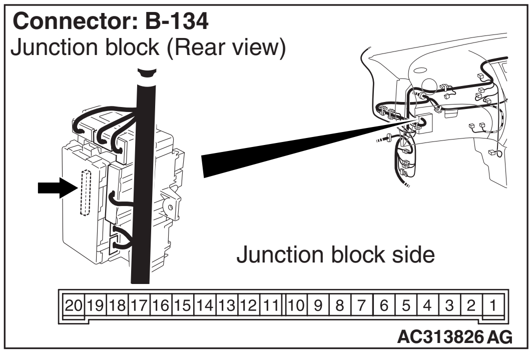
Q: Is the check result normal?

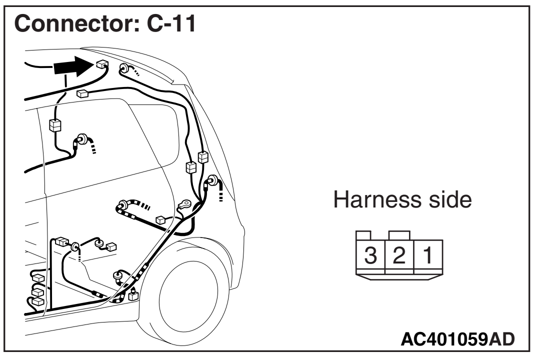
YES : Go to Step 8.

NO : Repair the defective connector.

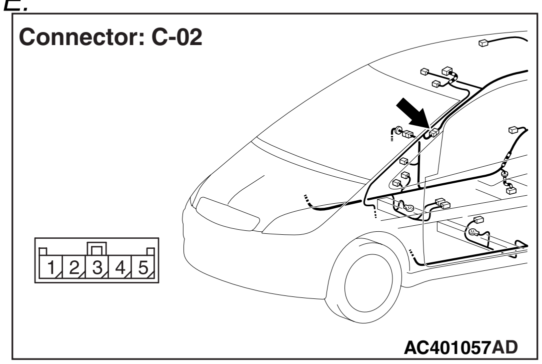
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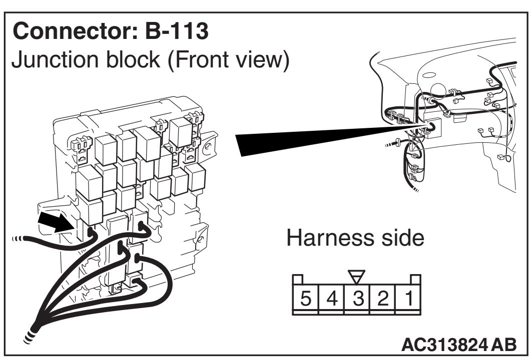
Step 8. Check the wiring harness from B-134 ETACS-ECU connector terminal No.18 to C-11 luggage compartment lamp connector terminal No.1





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-113 repair if necessary.

- Check the input and output lines for open circuit.

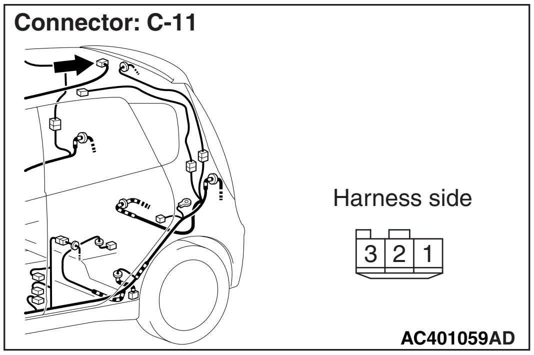
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

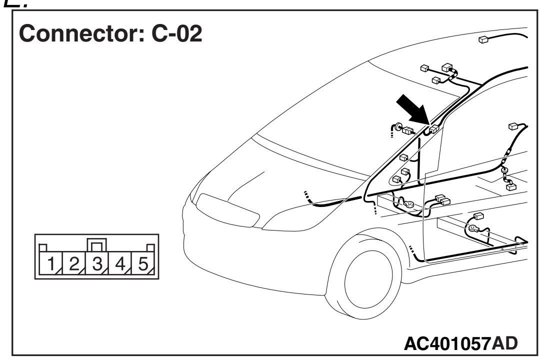
NO : Repair the wiring harness.

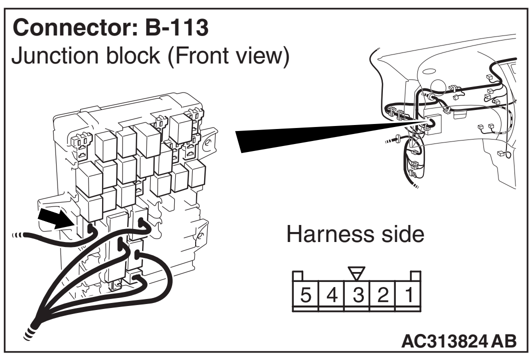
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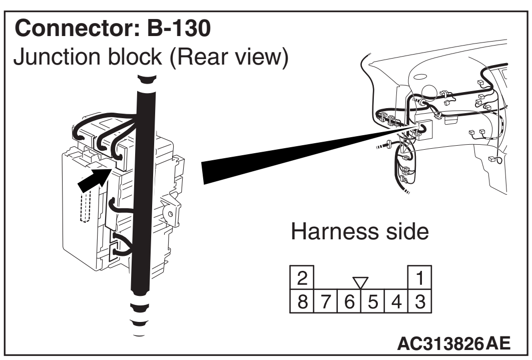
Step 9. Check the wiring harness from C-11 luggage compartment lamp connector terminal No.2 to body earth.



NOTE:







Prior to the wiring harness inspection, check intermediate connector C-02 and junction block connector B-113 and B-130 repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

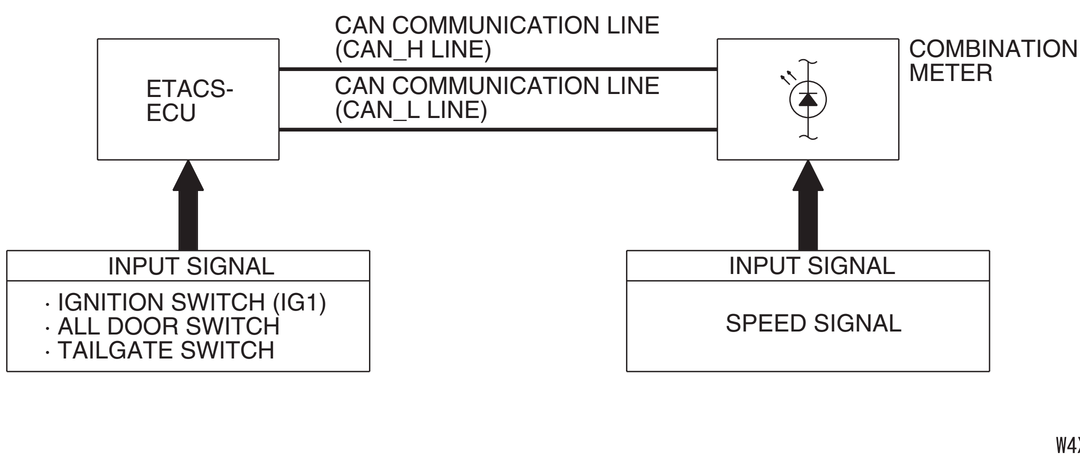
NO : Repair the wiring harness.

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INSPECTION PROCEDURE M-4: The door-ajar warning lamp does not illuminate/extinguish normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Door-Ajar Warning Lamp Function



COMMENTS ON TROUBLE SYMPTOM

If the door-ajar warning lamp does not work normally, the input signal circuit or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the all door switches
- Malfunction of the combination meter
- Malfunction of the CAN bus line
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-43."

Step 2. Pulse check

Check the input signals below which are related to the door-ajar warning lamp.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
All of the door switches	A door is opened when all the doors are closed

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

All the signals are received normally. : Go to Step 3.

The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure N-2 "The ignition switch (IG1) signal is not received P.54B-202."

All the door switch signals are not received. : Refer to Inspection Procedure N-10 "All the door switch signals are not received P.54B-219."

Step 3. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the CAN bus line (Refer to GROUP 54D, Diagnosis P.54D-13).

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Step 4. M.U.T.-III other system diagnosis code

Check whether the combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Diagnose the combination meter (Refer to GROUP 54A – Troubleshooting P.54A-31).

NO : Go to Step 5.

Step 5. M.U.T.-III actuator test

Perform the actuator test for the combination meter, and check that the door-ajar warning lamp illuminates (Refer to GROUP 54A – Combination Meter P.54A-62).

Q: Is the check result normal?

YES : Replace the ETACS-ECU.

NO : Replace the combination meter.

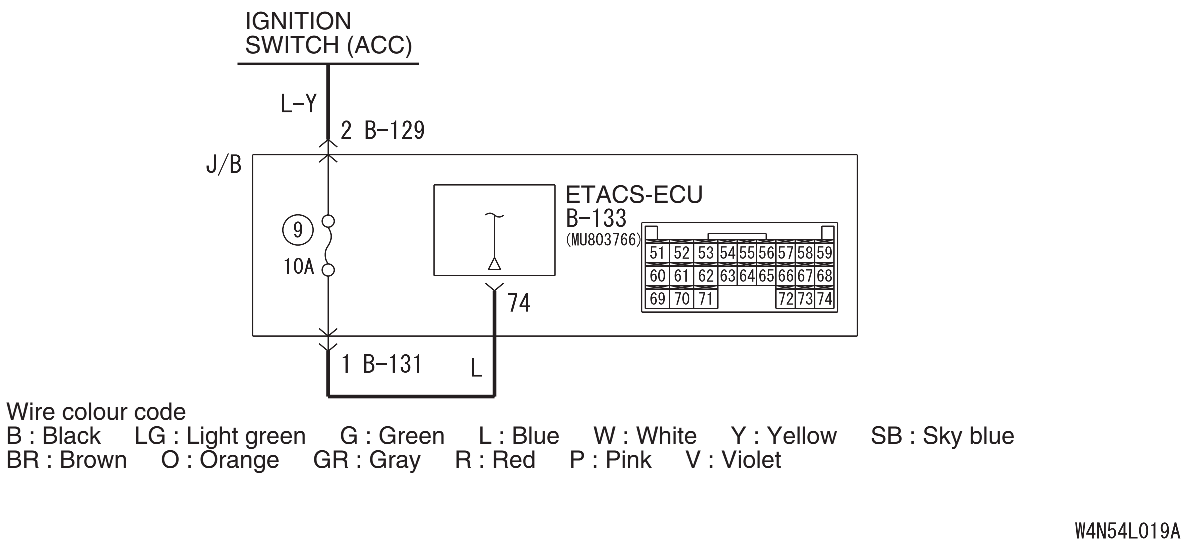
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INPUT SIGNAL PROCEDURES

INSPECTION PROCEDURE N-1: The ignition switch (ACC) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Ignition Switch (ACC) Input Circuit



COMMENTS ON TROUBLE SYMPTOM

Input signal from the ignition switch (ACC) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

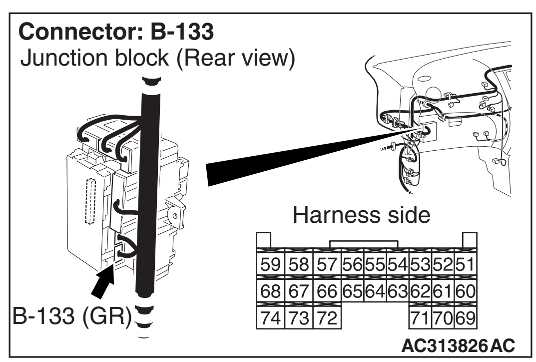
- Windshield wiper and washer
- Rear wiper and washer
- Electric retractable remote controlled door mirror

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

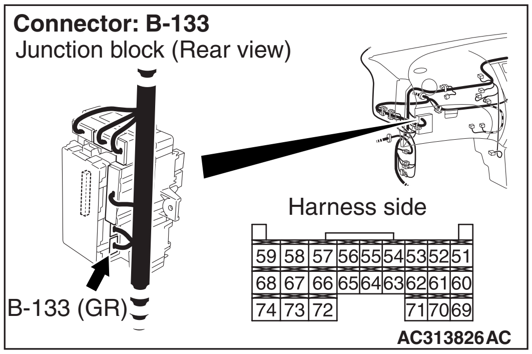
Step 1. Connector check: B-133 ETACS-ECU connector



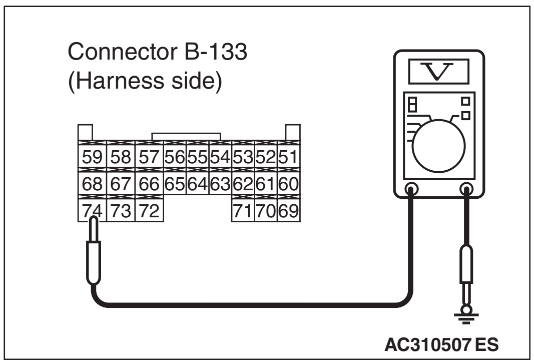
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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Step 2. Voltage measurement at the B-133 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Ignition switch: ACC position



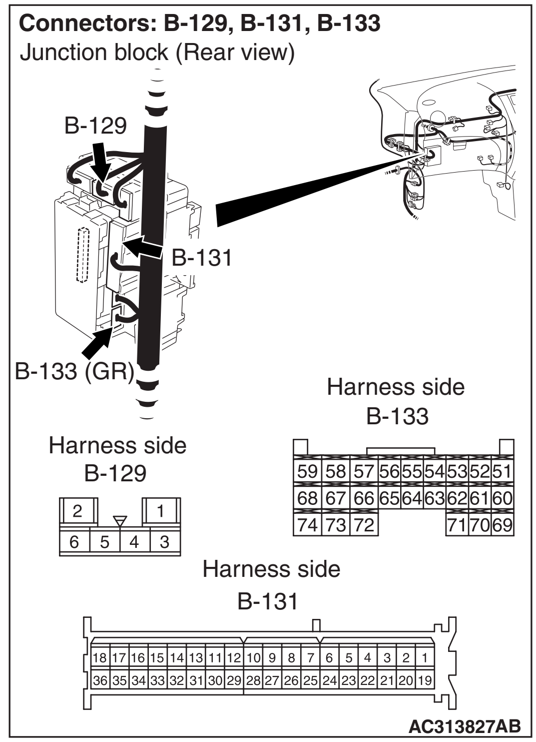
(3) Voltage between B-133 ETACS-ECU connector terminal No.74 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 4.
NO : Go to Step 3.

Step 3. Check the wiring harness between B-133 ETACS-ECU connector terminal No.74 to the ignition switch (ACC).



NOTE: Prior to the wiring harness inspection, check junction block connector B-129 and B-131, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

Step 4. Retest the system.

Check that the ignition switch (ACC) signal is received normally.

Q: Is the check result normal?

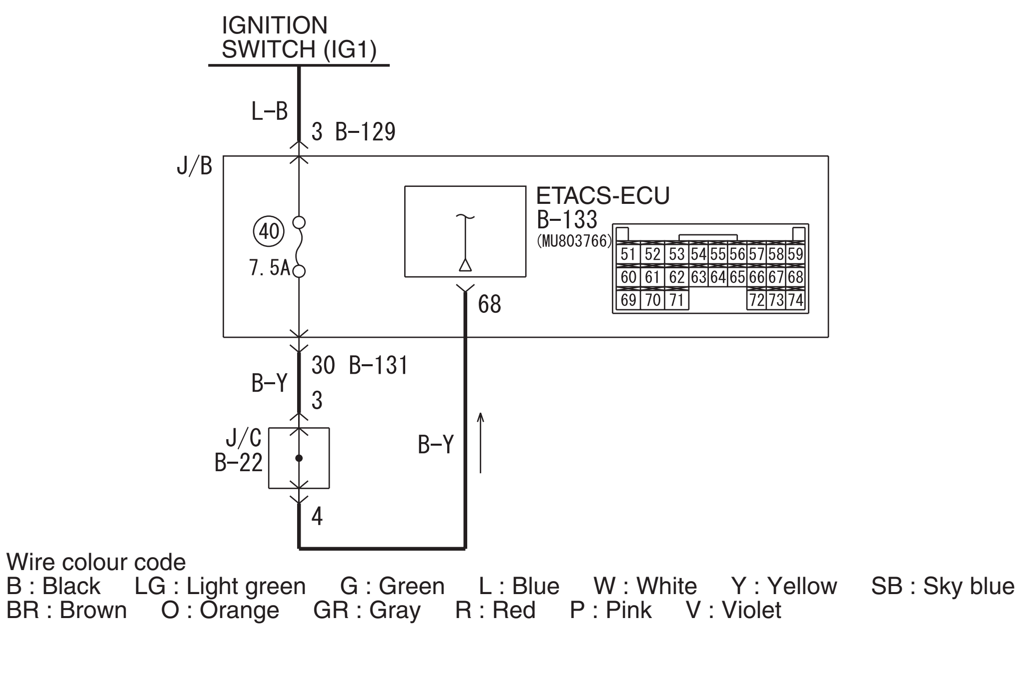
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE N-2: The ignition switch (IG1) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Ignition Switch (IG1) Input Circuit



COMMENTS ON TROUBLE SYMPTOM

Input signal from the ignition switch (IG1) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

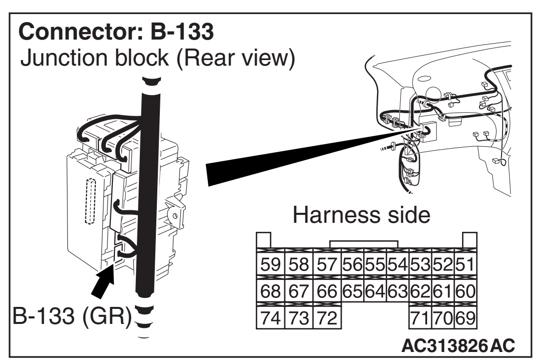
- Lamp reminder buzzer
- Power window
- Power window timer
- Electric retractable remote controlled door mirror
- Ignition key cylinder illumination lamp
- Turn signal lamp
- Room lamp

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

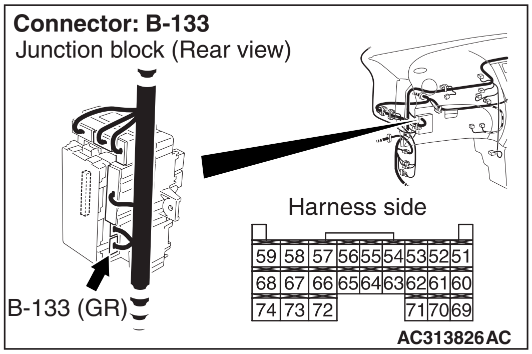
Step 1. Connector check: B-134 ETACS-ECU connector



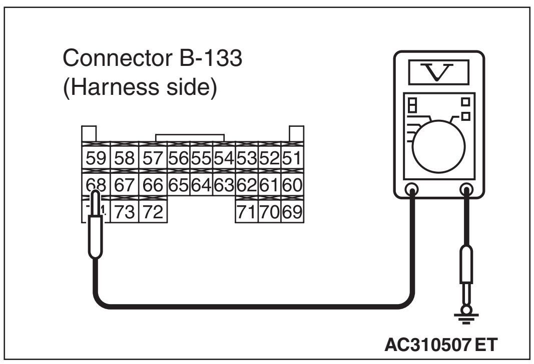
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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Step 2. Voltage measurement at the B-134 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Ignition switch: ON position



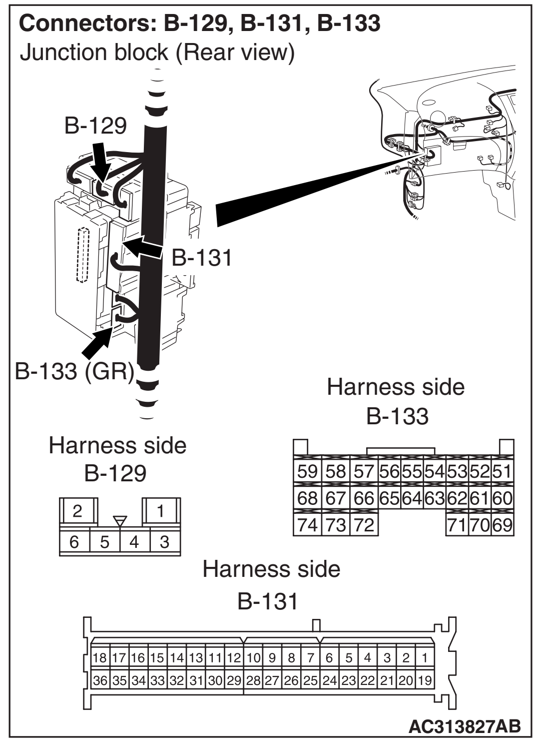
(3) Voltage between B-134 ETACS-ECU connector terminal No.68 and body earth

OK: System voltage

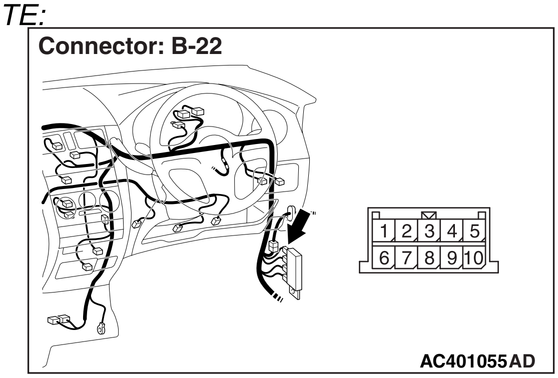
Q: Is the check result normal?

YES : Go to Step 4.
NO : Go to Step 3.

Step 3. Check the wiring harness between B-134 ETACS-ECU connector terminal No.68 to the ignition switch (IG1).



NOTE:



Prior to the wiring harness inspection, check joint connector B-22 and junction block connector B-129 and B-131, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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Step 4. Retest the system.

Check that the ignition switch (IG1) signal is received normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

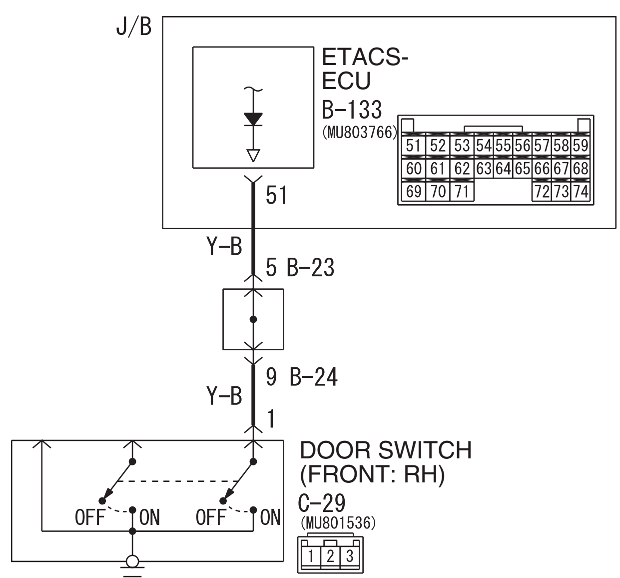
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-3: The driver's door switch signal is not received.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Driver's Door Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the driver's door switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Lamp reminder buzzer
- Keyless entry system
- Power window timer
- Ignition key cylinder illumination lamp
- Door-ajar warning lamp

POSSIBLE CAUSES

- Malfunction of the driver's door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

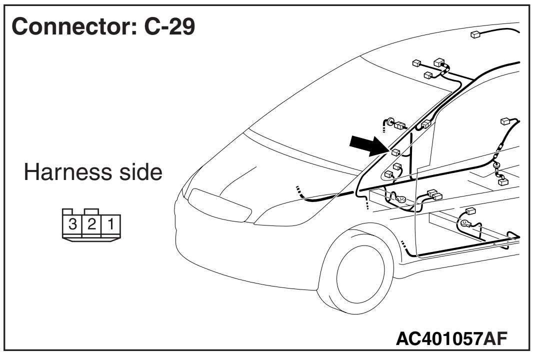
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DIAGNOSIS PROCEDURE

Step 1. Check the installation condition.
Check that the door switch (front: RH) is installed on the body correctly.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Correct the installation condition.

Step 2. Connector check: C-29 door switch (front: RH) connector.

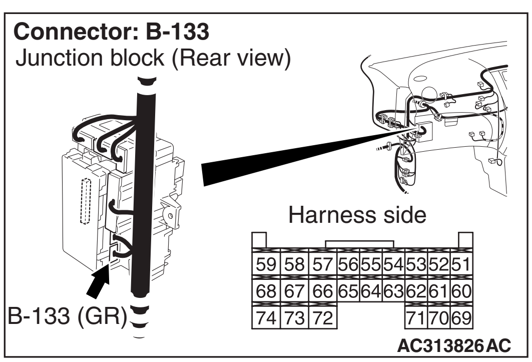


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Check the door switch (front: RH).
Refer to GROUP 42 – Door P.42-39.

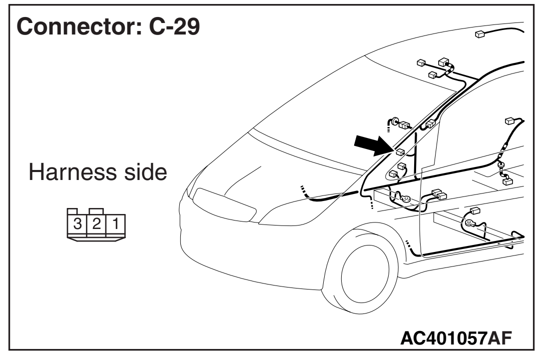
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the door switch (front: RH).

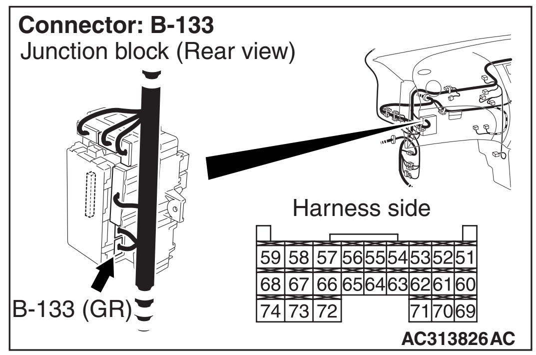
Step 4. Connector check: B-133 ETACS-ECU connector.



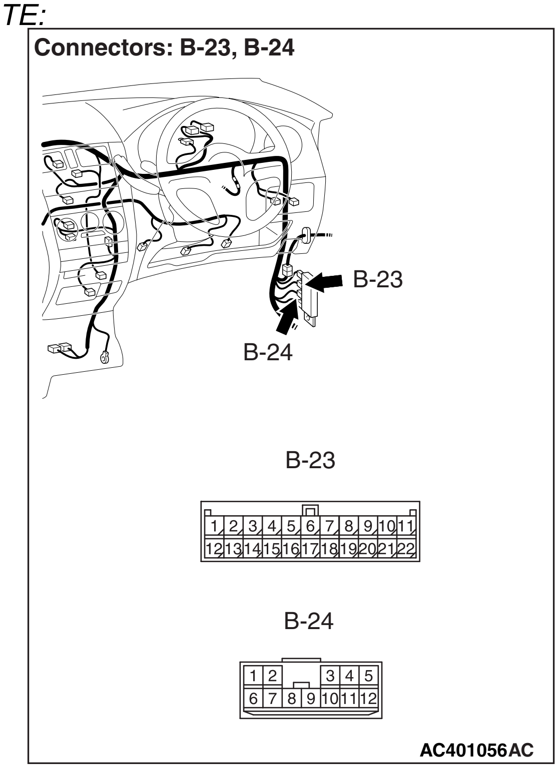
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the wiring harness between C-29 door switch (front: RH) connector terminal No.1 to B-133 ETACS-ECU connector terminal No.51.





NOTE:



Prior to the wiring harness inspection, check joint connector B-23 and B-24, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the wiring harness.

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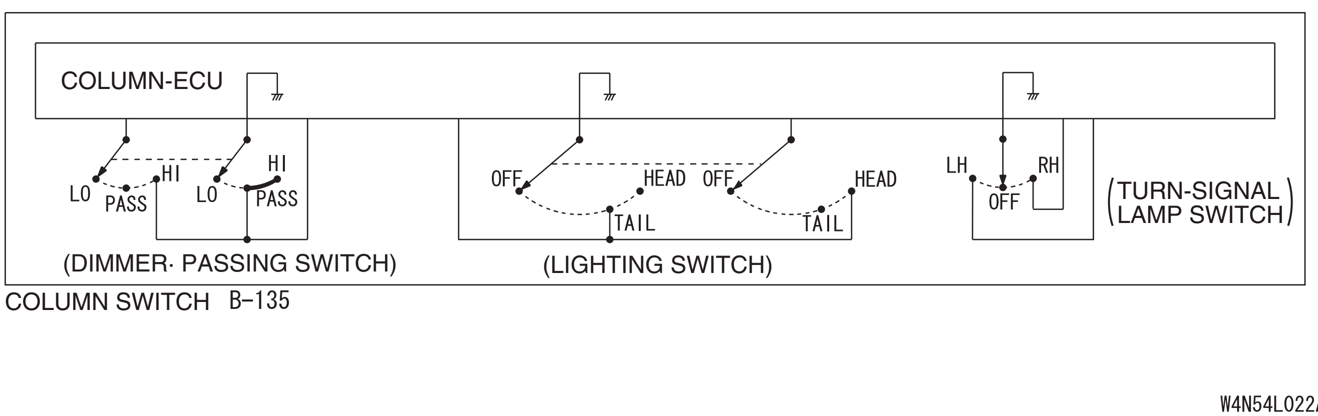
Step 6. Retest the system.
Check that the door switch (front: RH) signal is received normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-4: The column switch (lighting and turn-signal lamp switch) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Lighting Switch Input Circuit



COMMENTS ON TROUBLE SYMPTOM

Input signal from the column switch (lighting and turn-signal lamp switch) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Lamp reminder buzzer
- Headlamp and tail lamp
- Fog lamp
- Turn signal lamp

POSSIBLE CAUSES

- Malfunction of the column switch
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III diagnosis code
Check that the ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.54B-18.
NO : Go to Step 2.

Step 2. Retest the system.
Replace the column switch, and check if the column switch (lighting and turn-signal lamp switch) sends signal.
(1) Replace the column switch.
(2) Check if the column switch (lighting and turn-signal switch) sends signal.

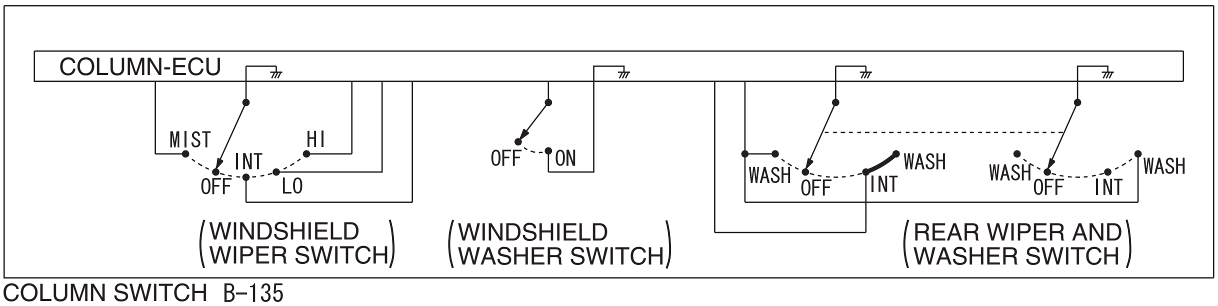
Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE N-5: The column switch (windshield wiper washer and rear wiper washer switch) signal is not received.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Wiper and Washer Switch Input Circuit



COMMENTS ON TROUBLE SYMPTOM

Input signal from the column switch (wiper switch) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Windshield wiper and washer
- Rear wiper and washer

POSSIBLE CAUSES

- Malfunction of the column switch
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-III diagnosis code

Check that the ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.54B-18.
NO : Go to Step 2.

Step 2. Retest the system.

Replace the column switch, and check if the column switch (windshield wiper washer and rear wiper washer switch) sends signal.

(1) Replace the column switch.
(2) Check if the column switch (windshield wiper/washer and rear wiper washer switch) sends signal.

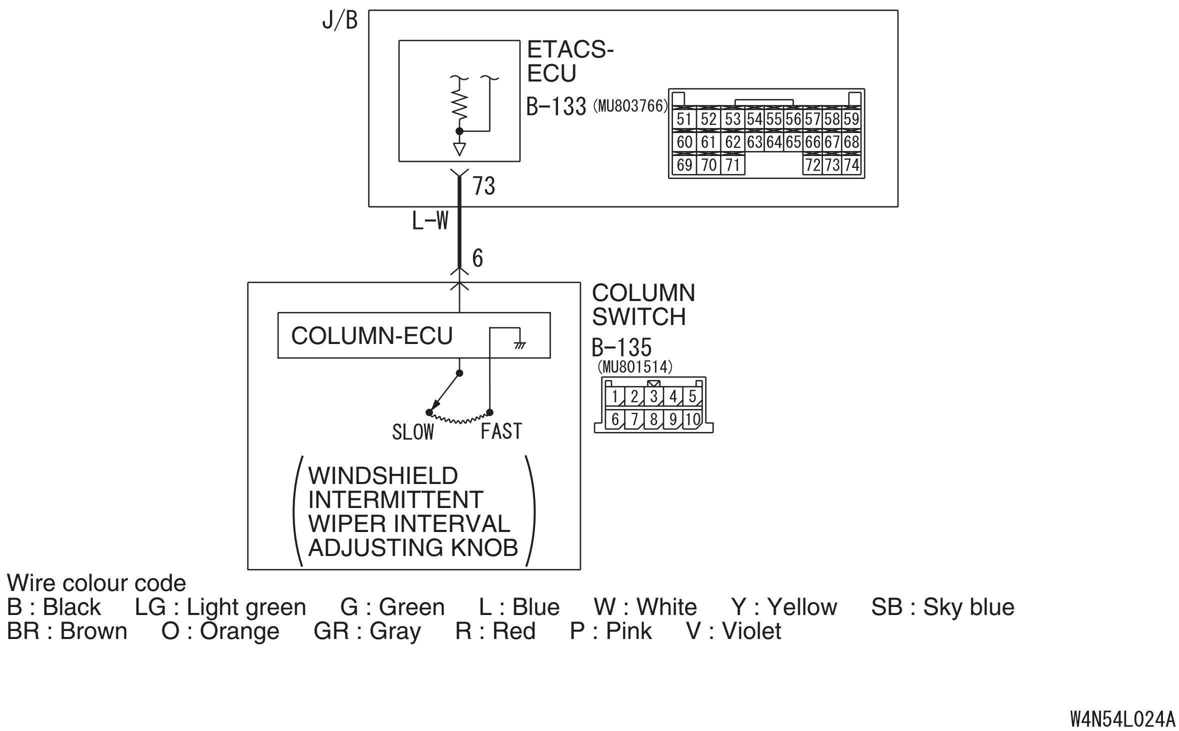
Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE N-6: The windshield intermittent wiper volume signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit



COMMENTS ON TROUBLE SYMPTOM

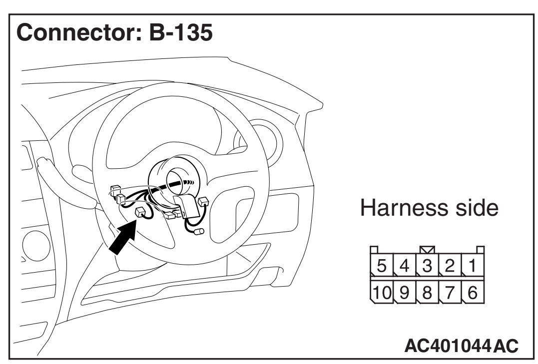
The intermittent wiper interval is calculated in accordance with the input signal from the windshield intermittent wiper volume. If this signal is abnormal, the wiper interval can not be adjusted.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

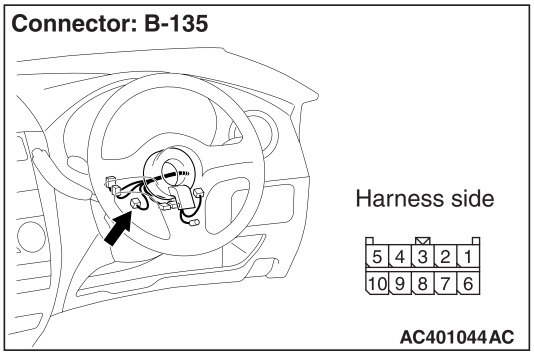
DIAGNOSIS PROCEDURE

Step 1. Connector check: B-135 column switch connector.

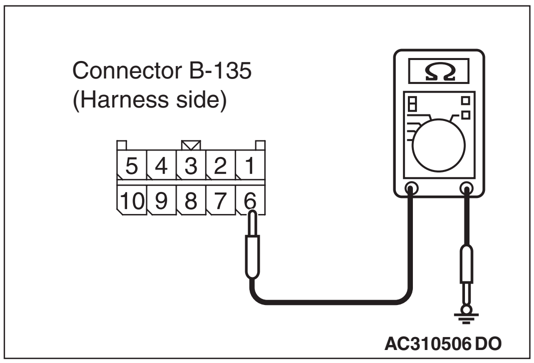


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Resistance measurement at the B-135 column switch connector.



(1) Disconnect the connector, and measure at the column switch side.



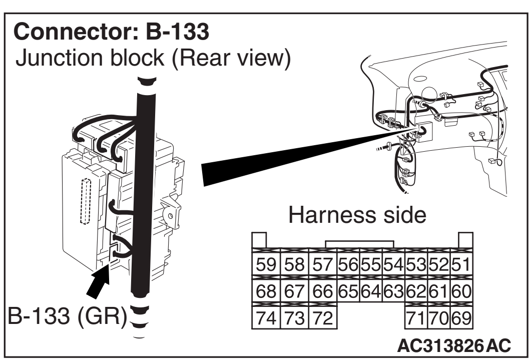
(2) Resistance between B-135 column switch connector terminal No.6 and body earth

OK: The resistance should rise from 0 to 1 kΩ when the windshield intermittent wiper volume is rotated from "Fast" to "Slow".

Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the column switch.

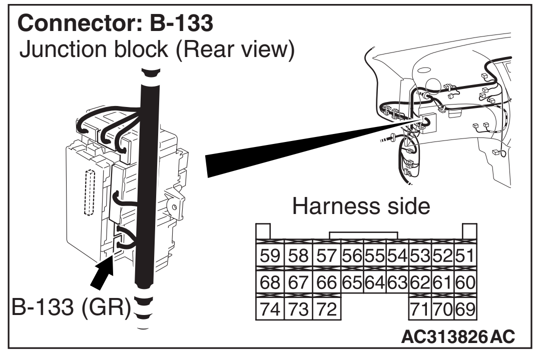
Step 3. Connector check: B-133 ETACS-ECU connector.

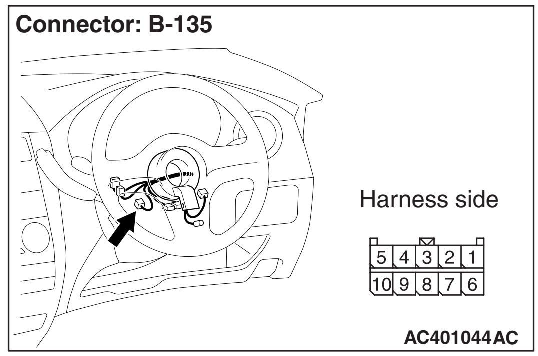


Q: Is the check result normal?

YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Check the wiring harness between B-135 column switch connector terminal No.6 to B-133 ETACS-ECU connector terminal No.73.





- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the wiring harness.

Step 5. Retest the system.

Check that the windshield intermittent wiper volume is sending a correct signal.

Q: Is the check result normal?

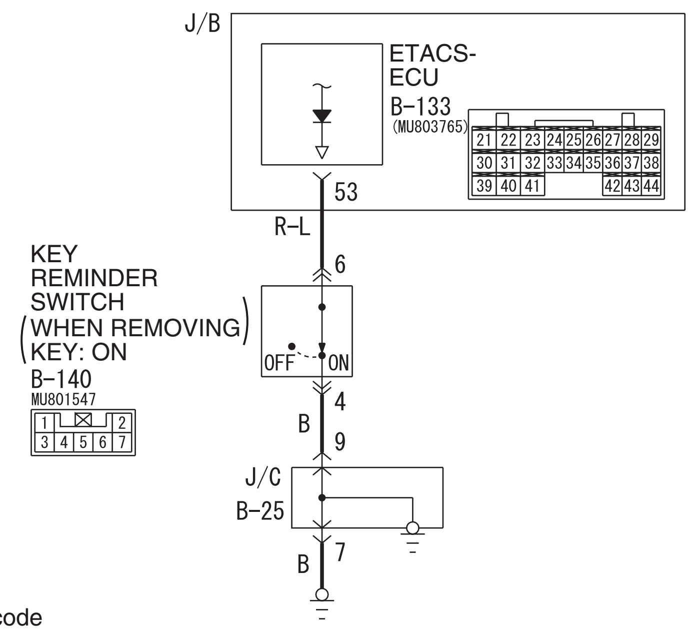
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE N-7: The key reminder switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Key Reminder Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the key reminder switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

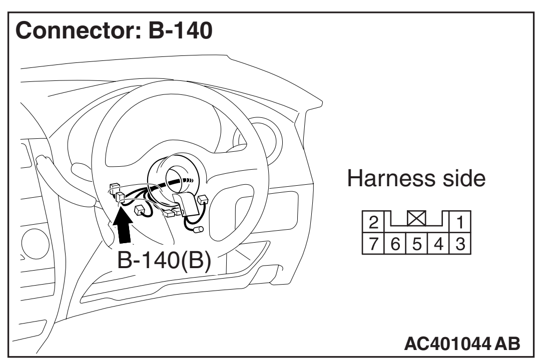
- Keyless entry system
- Ignition key cylinder illumination lamp
- Room lamp

POSSIBLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: B-140 key reminder switch connector



Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

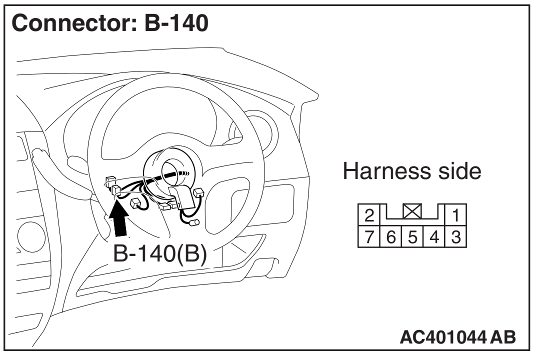
Step 2. Check the key reminder switch.

Refer to GROUP 54A – Ignition switch P.54A-27.

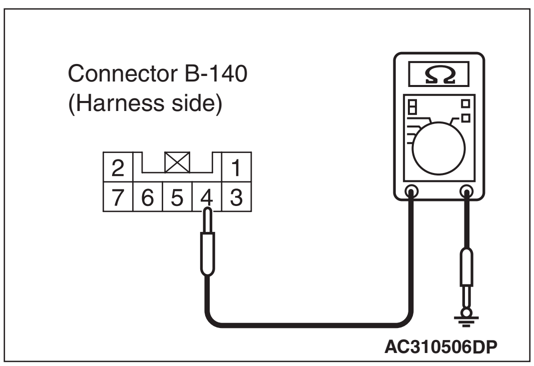
Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the key reminder switch.

Step 3. Resistance measurement at the B-140 key reminder switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.



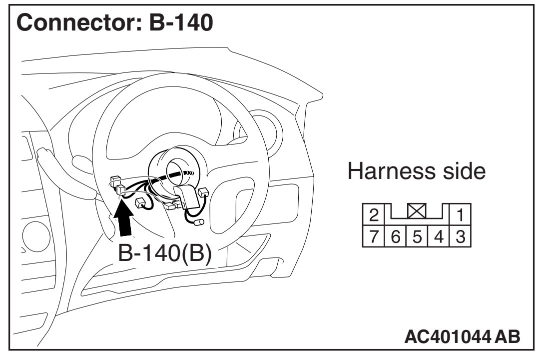
(2) Resistance between B-140 key reminder switch connector terminal No.4 and body earth

OK: Continuity exists (2 Ω or less)

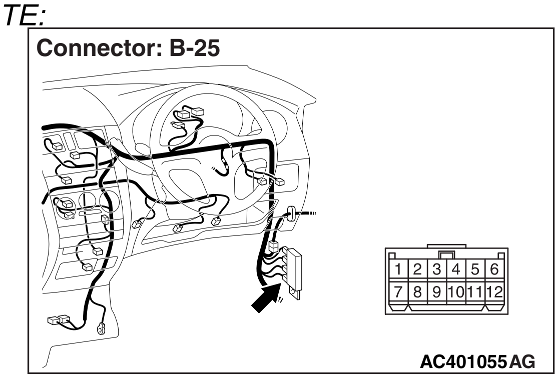
Q: Is the check result normal?

YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness between B-140 key reminder switch connector terminal No.4 to the body earth.



NOTE:



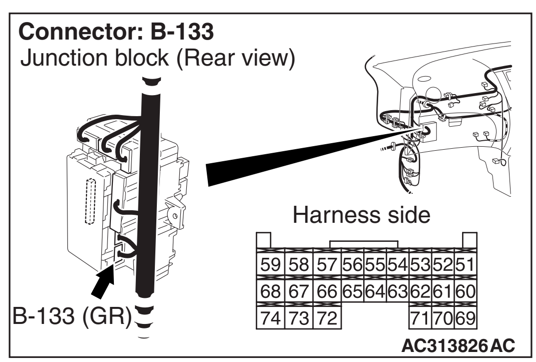
Prior to the wiring harness inspection, check joint connector B-25, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

Step 5. Connector check: B-133 ETACS-ECU connector

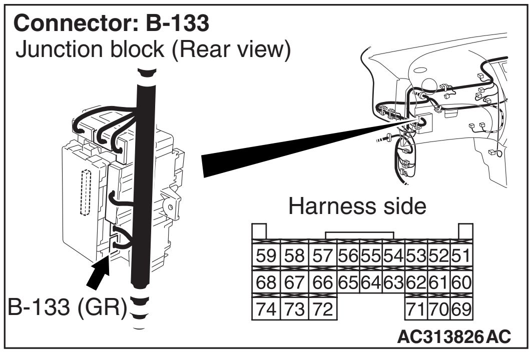


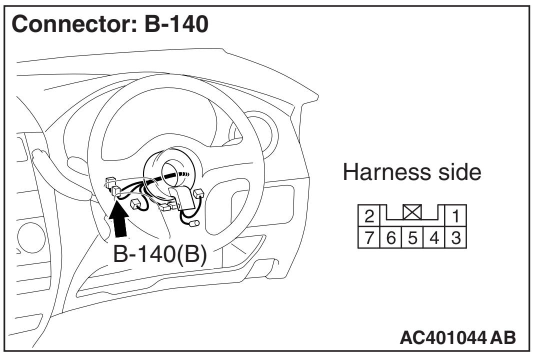
Q: Is the check result normal?

YES : Go to Step 6.
NO : Repair the defective connector.

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Step 6. Check the wiring harness between B-140 key reminder switch connector terminal No.6 to B-133 ETACS-ECU connector terminal No.53.





- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

Step 7. Retest the system.
Check that the key reminder switch signal is received normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

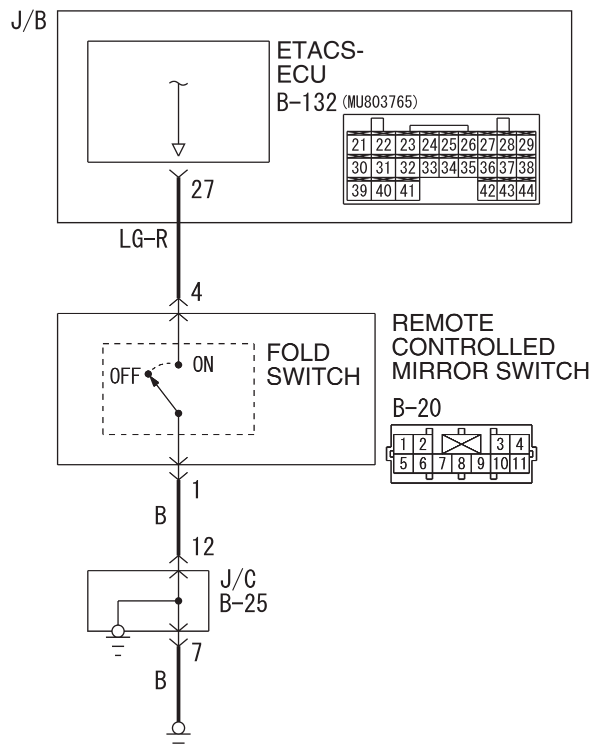
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INSPECTION PROCEDURE N-8: Signal is not received from the remote controlled mirror switch (folding/unfolding switch).

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Remote Controlled Mirror Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

The electric-folding door mirrors work in accordance with the input signal from the remote controlled mirror switch. If the input signal is abnormal, the door mirrors will not work normally.

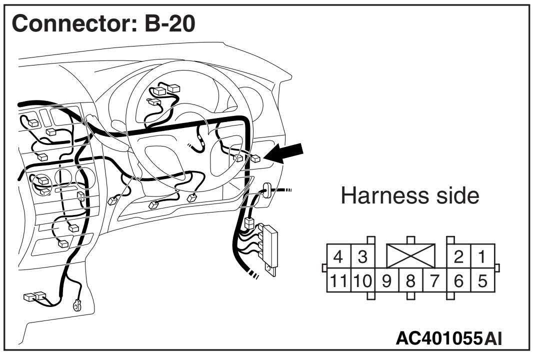
POSSIBLE CAUSES

- Malfunction of the remote controlled mirror switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Connector check: B-20 remote controlled mirror switch connector



Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the defective connector.

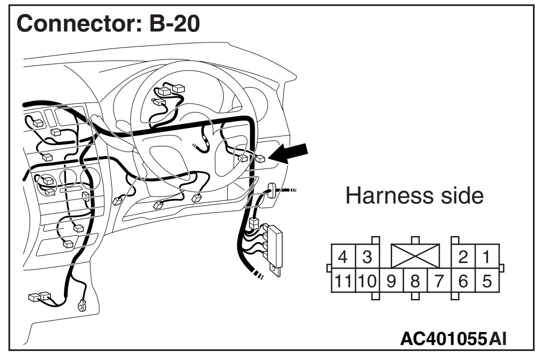
Step 2. Check the remote controlled mirror switch.

Refer to GROUP 51 – Door mirror P.51-43.

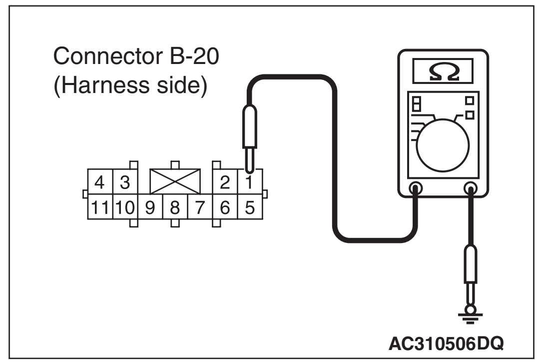
Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the remote controlled mirror switch.

Step 3. Resistance measurement at the B-20 remote controlled mirror switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Continuity between B-20 remote controlled mirror switch connector terminal No.1 and body earth

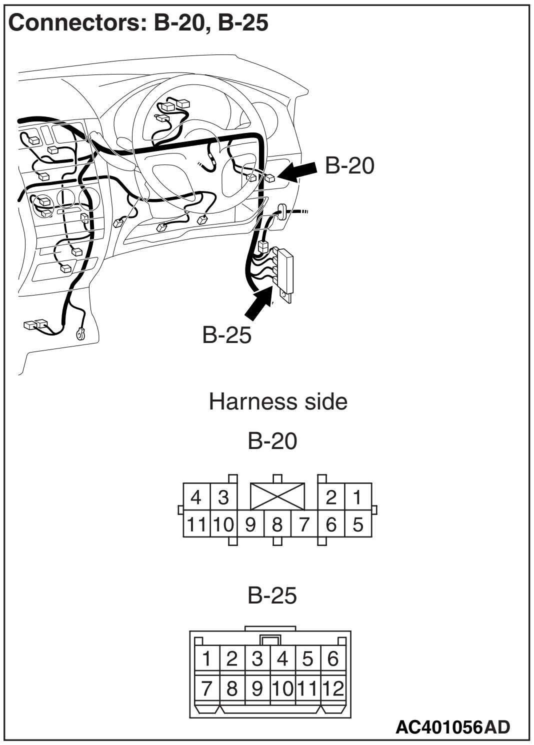
OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 5.
NO : Go to Step 4.

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Step 4. Check the wiring harness between B-20 remote controlled mirror switch connector terminal No.1 to body earth.



NOTE: Prior to the wiring harness inspection, check joint connector B-25, and repair if necessary.

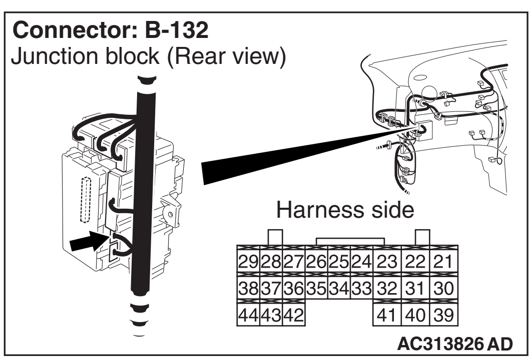
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 5. Connector check: B-132 ETACS-ECU connector

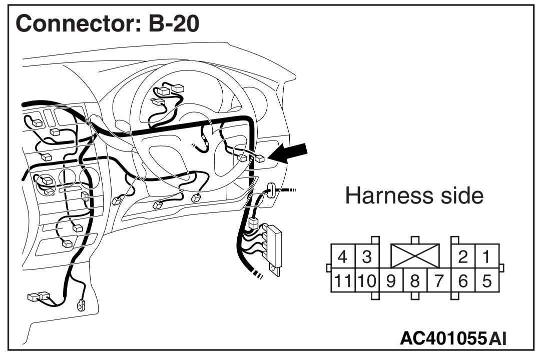


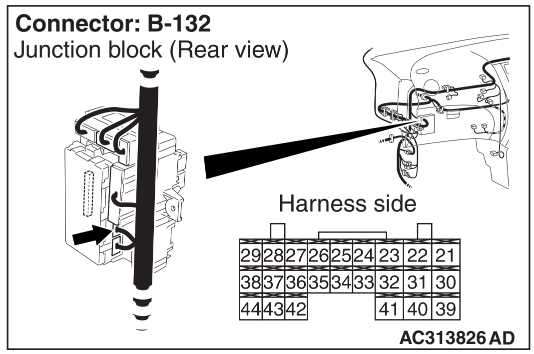
Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

Step 6. Check the wiring harness between B-20 remote controlled mirror switch connector terminal No.4 to B-132 ETACS-ECU connector terminal No.27.





- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

Check that the electric remote controlled mirror switch signal is received normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

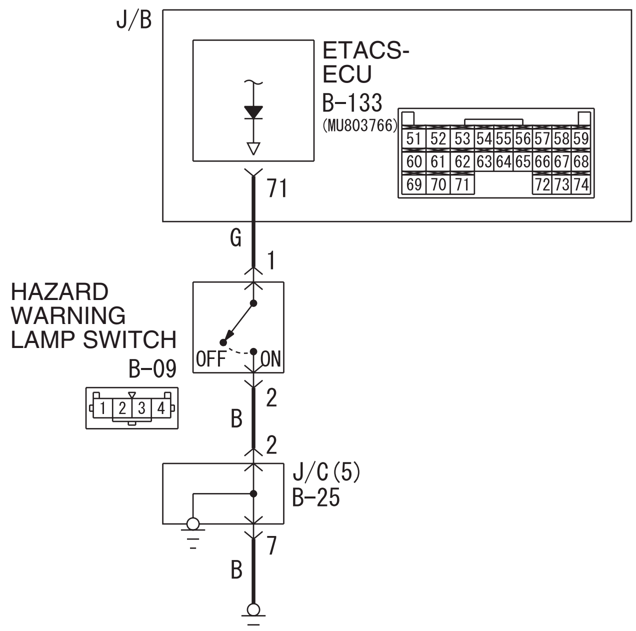
NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE N-9: The hazard warning lamp switch signal is not received.

⚠ **CAUTION**
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Hazard Warning Lamp Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

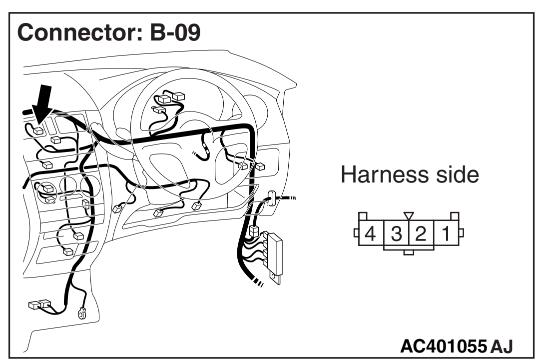
Input signal from the hazard warning lamp switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

POSSIBLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: B-09 hazard warning lamp switch connector



Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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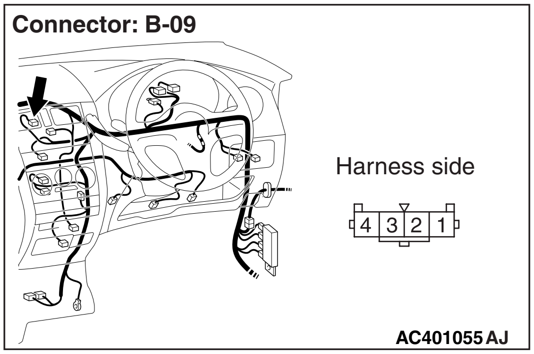
Step 2. Check the hazard warning lamp switch.

Refer to GROUP 54A – Hazard warning lamp switch P.54A-87.

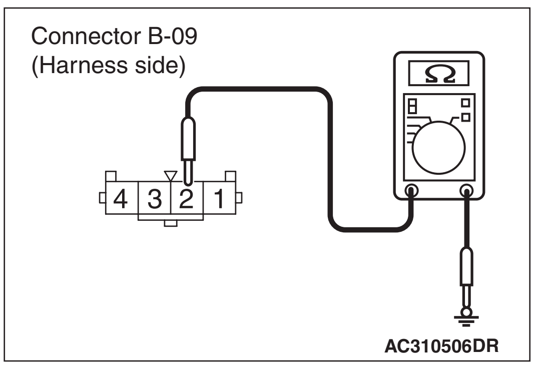
Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the hazard warning lamp switch.

Step 3. Resistance measurement at the B-09 hazard warning lamp switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.



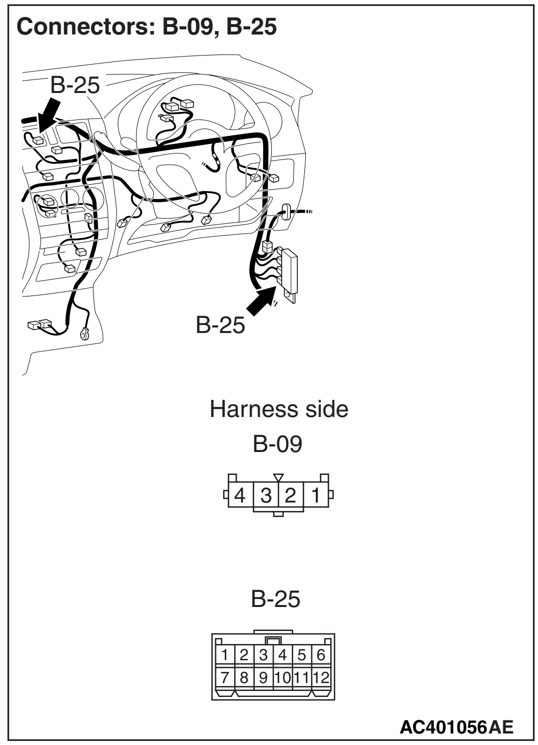
(2) Resistance between B-09 hazard warning lamp switch connector terminal No.2 and body earth

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness between B-09 hazard warning lamp switch connector terminal No.2 to the body earth.



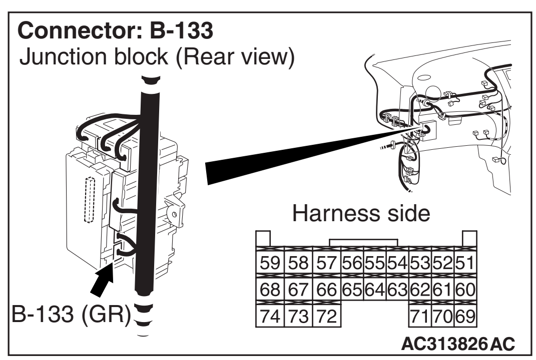
NOTE: Prior to the wiring harness inspection, check joint connector B-25, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

Step 5. Connector check: B-133 ETACS-ECU connector

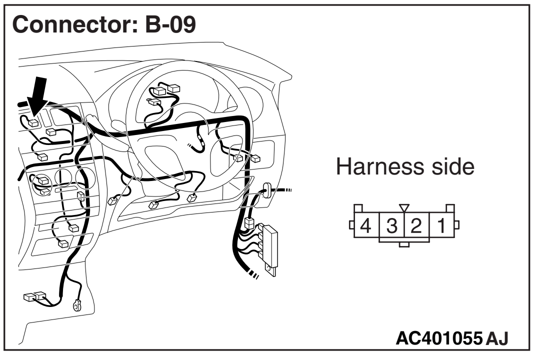


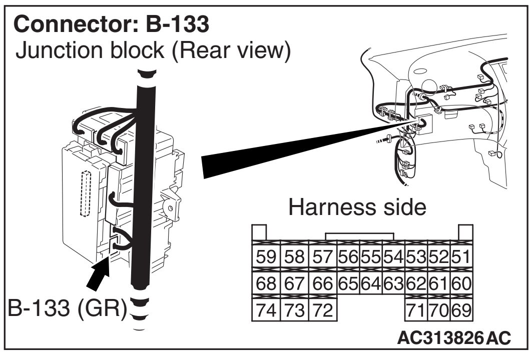
Q: Is the check result normal?

YES : Go to Step 6.
NO : Repair the defective connector.

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Step 6. Check the wiring harness between B-133 ETACS-ECU connector terminal No.71 to B-09 hazard warning lamp switch connector terminal No.1.





- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

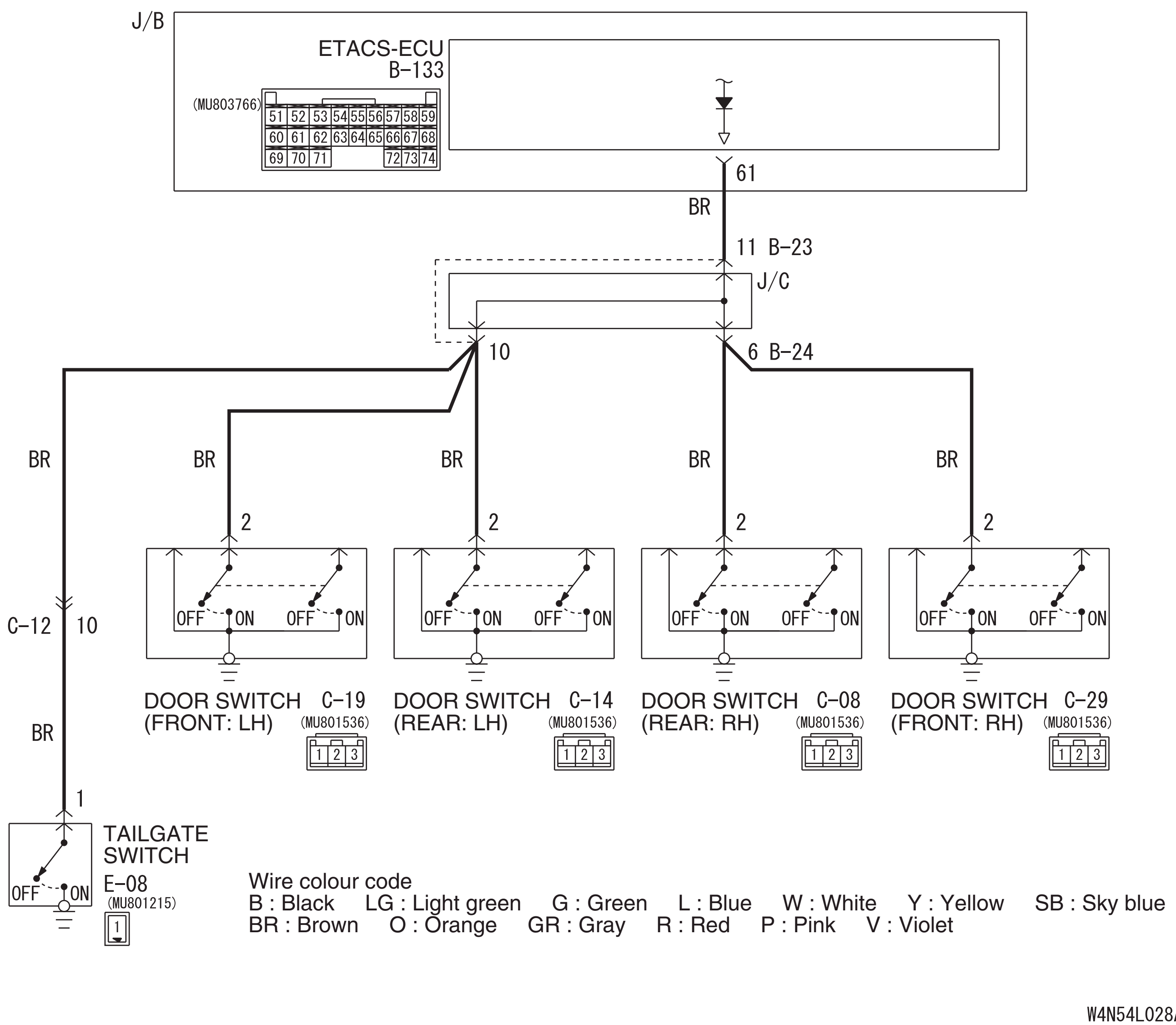
Step 7. Retest the system.
Check that the hazard warning lamp switch signal is received normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-10: All the door switch signals are not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Door Switches Input Circuit



COMMENTS ON TROUBLE SYMPTOM

Input signals from all the door switches are used to operate the functions below. If the signal(s) are abnormal, these functions will not work normally.

- Door-ajar warning buzzer
- Keyless entry system
- Room lamp
- Door-ajar warning lamp

POSSIBLE CAUSES

- Malfunction of the door switches
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

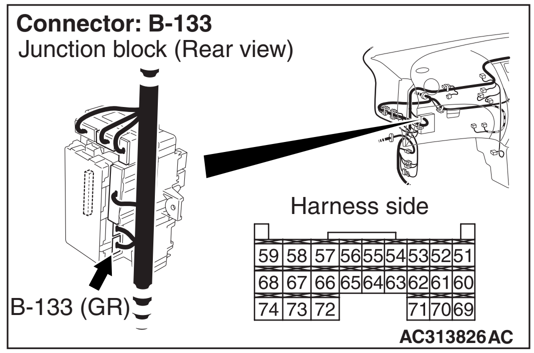
Step 1. Pulse check
Check the input signal from the driver's door switch.

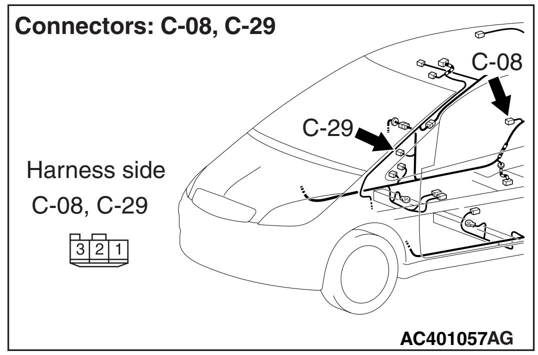
System switch	Check conditions
Driver's door switch	When the driver's door is opened
Passenger’s door switch	When the passenger's door is opened

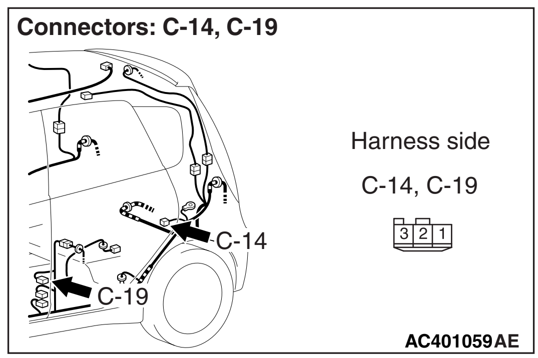
OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

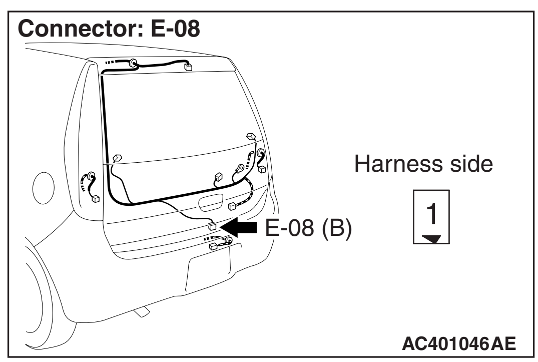
Q: Are the check result normal?
All the signals are received normally. : Go to Step 2.
The driver’s door switch signals is not received. : Refer to Inspection Procedure N-3 "The driver's door switch signal is not received P.54B-204."
The passenger’s door switch signals is not received. : Refer to inspection procedure N-14 "The passenger's door switch signal is not received P.54B-231."

Step 2. Connectors check: C-29 (front: RH), C-19 (front: LH), C-08 (rear: RH) or C-14 (rear: LH) door switch connectors or E-08 tailgate switch connector, and B-133 ETACS-ECU connector









Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

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Step 3. Check the installation condition.

Check that the door switch is installed on the body correctly.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Correct the installation condition.

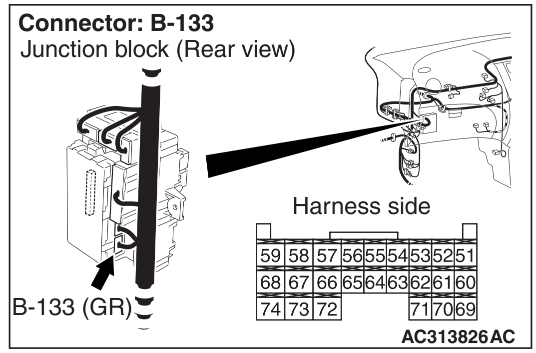
Step 4.Check the door switch.

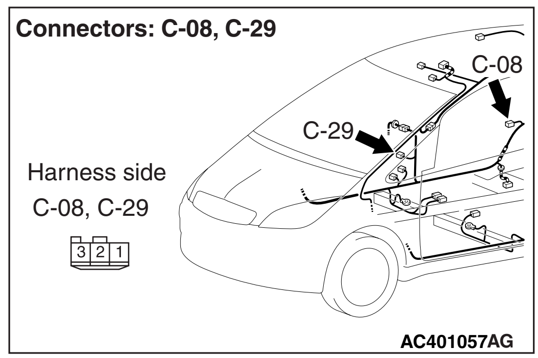
Refer to GROUP 42 – Door P.42-39.

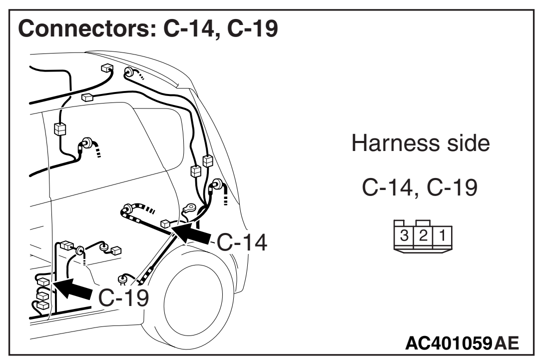
Q: Is the check result normal?

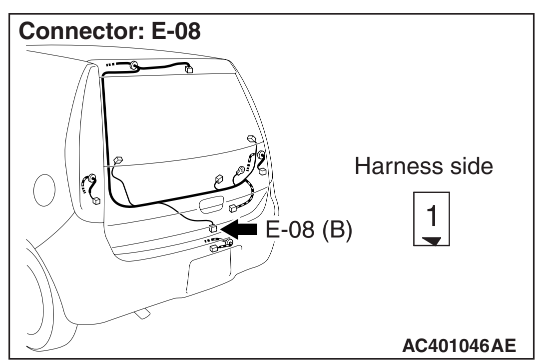
YES : Go to Step 5.
NO : Replace the door switch.

Step 5. Check the wiring harness from terminal No.2 of the C-29 (front: RH), C-19 (front: LH), C-08 (rear: RH) or C-14 (rear: LH) door switch connector or terminal No.1 of the E-08 tailgate switch connector to terminal No.61 of the B-133 ETACS-ECU connector.



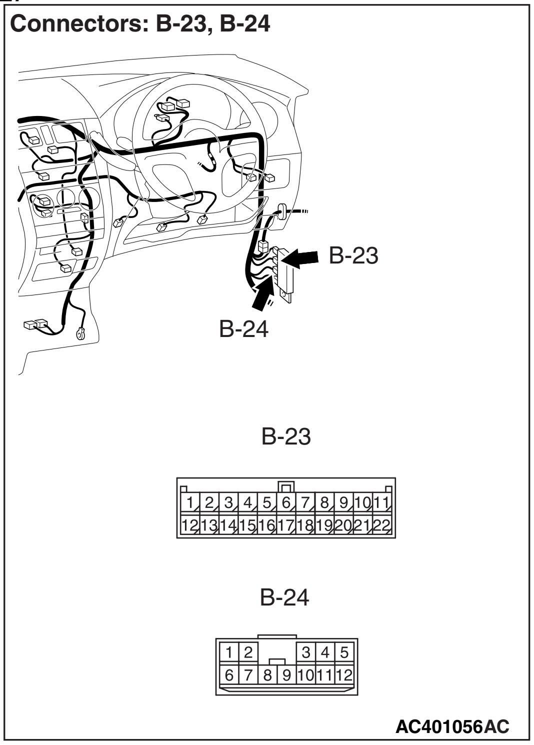


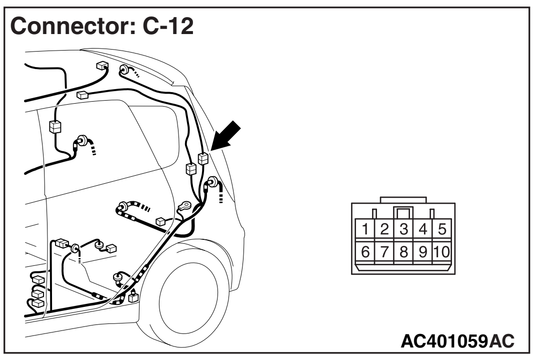




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NOTE:





Prior to the wiring harness inspection, check intermediate connector C-12 <tailgate> and junction block connector B-23 or B-24 <RH> and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness between each of the door switches and the ETACS-ECU.

Step 6. Retest the system.

Check that all the all door switch signals are received normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

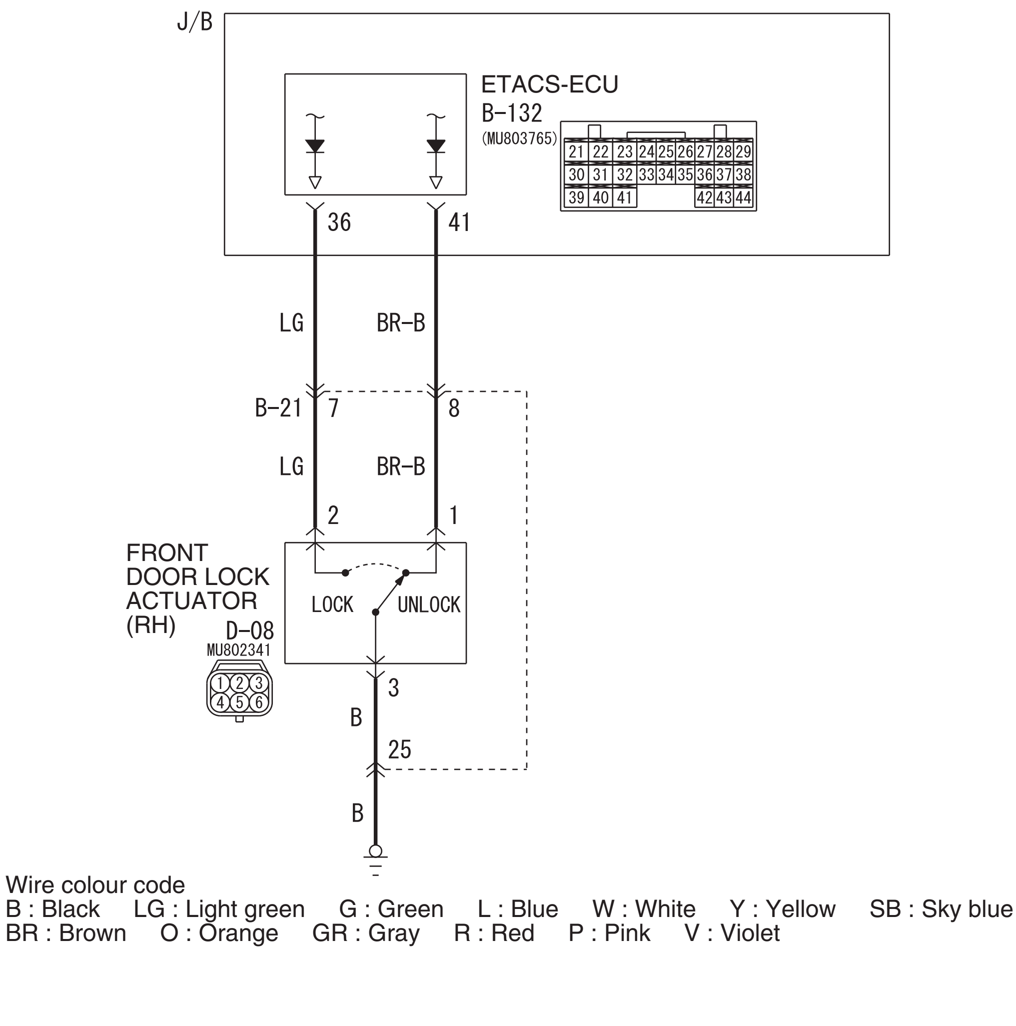
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-11: The driver's door lock actuator switch signal is not received.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Door Lock Actuator Input Circuit



COMMENTS ON TROUBLE SYMPTOM

Input signal from the driver's door lock actuator is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Central door locking
- Room lamp

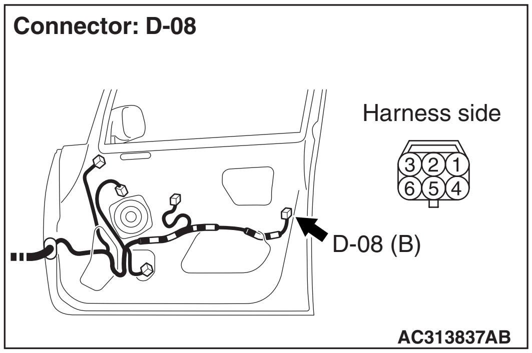
POSSIBLE CAUSES

- Malfunction of the front door lock actuator (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1.Connector check: D-08 front door lock actuator (RH) connector



Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the defective connector.

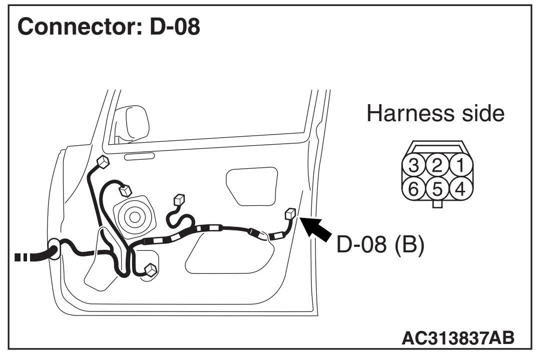
Step 2. Check the front door lock actuator (RH).

Refer to GROUP 42 – Door P.42-46.

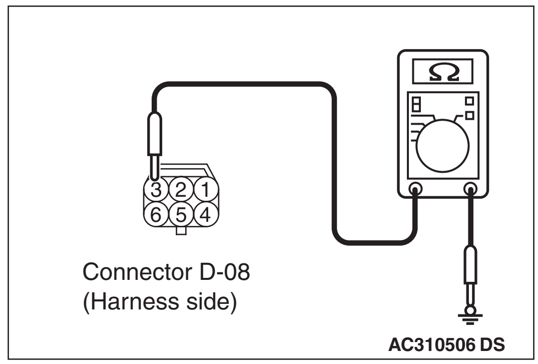
Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the front door lock actuator (RH).

Step 3. Resistance measurement at the D-08 front door lock actuator (RH) connector



(1) Disconnect the connector, and measure at the wiring harness side.



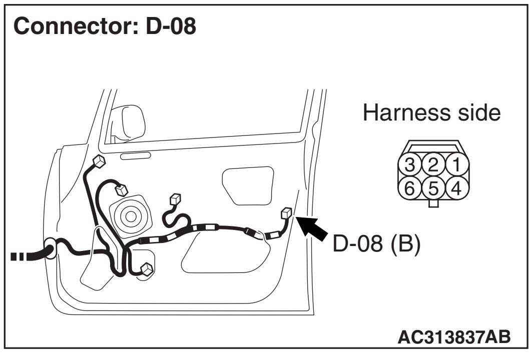
(2) Resistance between D-08 front door lock actuator (RH) connector terminal No.3 and body earth

OK: Continuity exists (2 Ω or less)

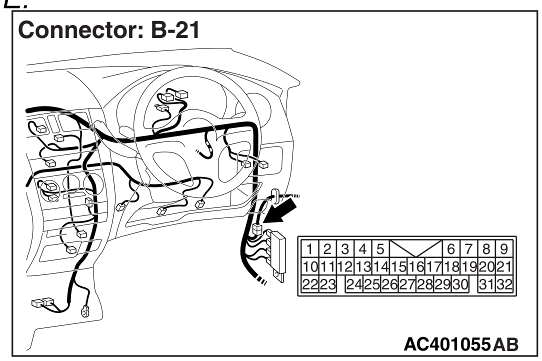
Q: Is the check result normal?

YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness between D-08 front door lock actuator (RH) connector terminal No.3 to body earth D-08



NOTE:



Prior to the wiring harness inspection, check intermediate connector B-21, and repair if necessary.

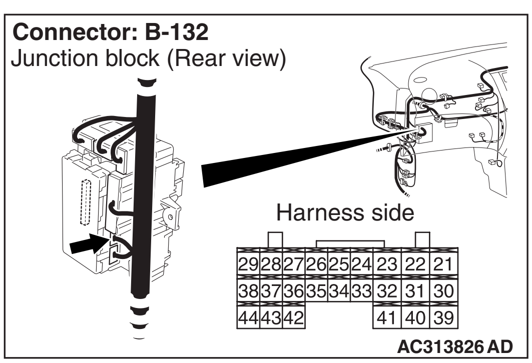
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 5. Connector check: B-132 ETACS-ECU connector

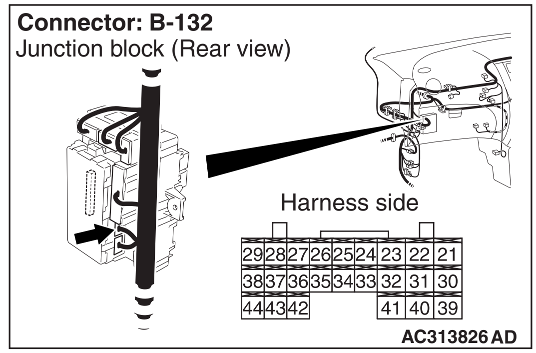


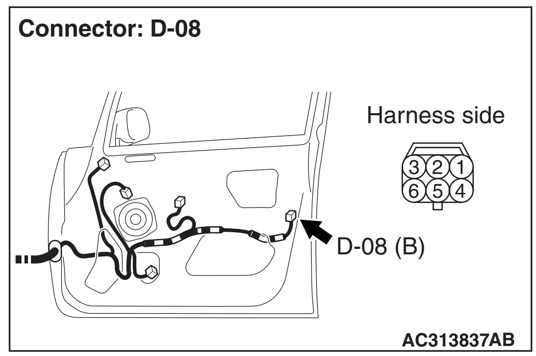
Q: Is the check result normal?

YES : Go to Step 6.

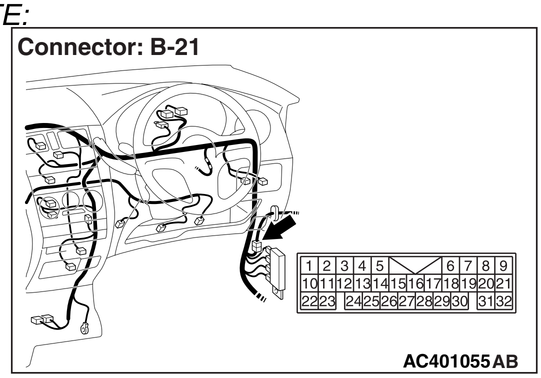
NO : Repair the defective connector.

Step 6. Check the wiring harness from D-08 front door lock actuator (RH) connector terminal No.1 and 2 to B-132 ETACS-ECU connector terminal No.41 and 36.





NOTE:



Prior to the wiring harness inspection, check intermediate connector B-21, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

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Step 7. Retest the system.

Check that the driver's door lock actuator switch signal is received normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

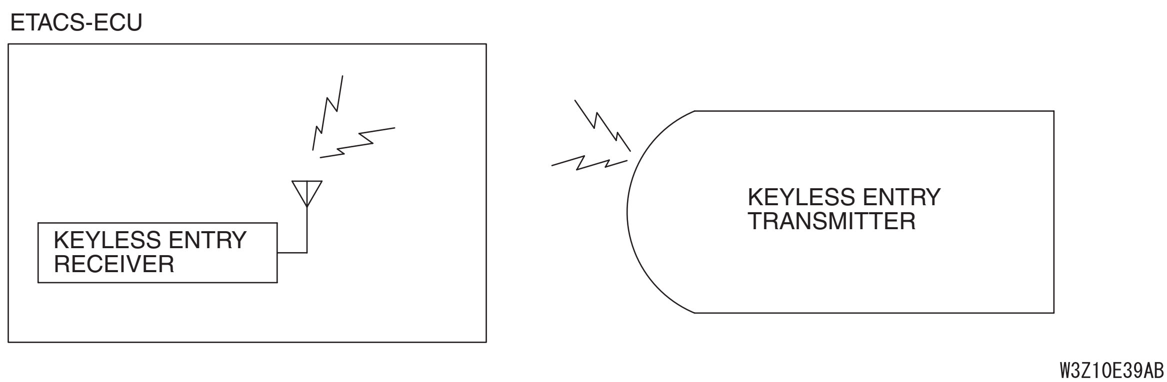
NO : Replace the ETACS-ECU.

Inspection Procedure N-12: Each switch signal of the keyless entry transmitter is not received.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Transmitter Input Circuit



COMMENTS ON TROUBLE SYMPTOM

Input signal from the keyless entry transmitter is used to operate the keyless entry system. If the signal is abnormal, the keyless entry system will not work normally.

- Keyless entry system
- Keyless entry hazard answerback
- Multi-mode keyless entry system

POSSIBLE CAUSES

- Malfunction of the keyless entry transmitter
- Defective battery of the keyless entry transmitter
- Malfunction of the ETACS-ECU

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DIAGNOSIS PROCEDURE

Step 1. Pulse check

Check whether the ETACS-ECU receives signal from a transmitter or not. For this check, you should use the 2-button-type transmitter (integrated with a key), which cover screw is silver and has already been registered.

NOTE: For how to register the keyless entry transmitter encrypted code, refer to GROUP 42 – On-vehicle Service P.42-62.

System switch	Check conditions
Keyless entry transmitter "LOCK/UNLOCK" switch	When the switch is turned from off to on

OK: The M.U.T.-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Go to Step 4.

Step 2. Register the encrypted code, and then retest the system.

1. Register the keyless entry transmitter again.
2. Check that each signal is received from the keyless entry transmitter.

Q: Is the check result normal?

YES : Accidental erasure of the encrypted code Or the key is mismatched. Check that the customer is an authorised person.
NO : Go to Step 3 (including the case that key registration is not possible).

Step 3. Replace the battery of the keyless entry transmitter, and retest the system.

1. Replace the battery of the keyless entry transmitter.
2. Check that each signal is received from the keyless entry transmitter.

Q: Is the check result normal?

YES : Flat battery.
NO : Go to Step 4.

Step 4. Register the encrypted code again by using a known good keyless entry transmitter. Then retest the system.

1. Register a known good keyless entry transmitter (the one which mounting screws are silver).
2. Check that each signal is received from the keyless entry transmitter.

Q: Is the check result normal?

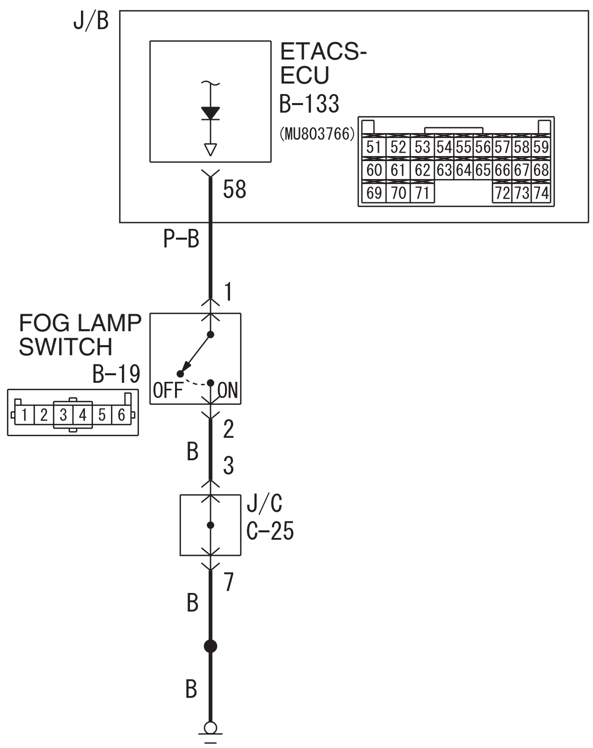
YES : Replace the original keyless entry transmitter.
NO : Replace the ETACS-ECU (including the case where registration is impossible).

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INSPECTION PROCEDURE N-13: The fog lamp switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Fog Lamp Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the fog lamp switch is used to operate the fog lamps. If the signal is abnormal, the fog lamps will not illuminate and extinguish normally.

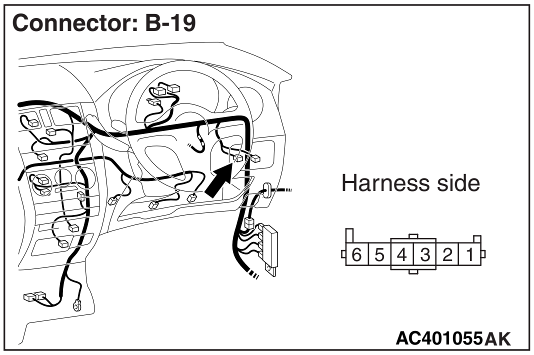
POSSIBLE CAUSES

- Malfunction of the fog lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

Step 1. Connector check: B-19 fog lamp switch connector



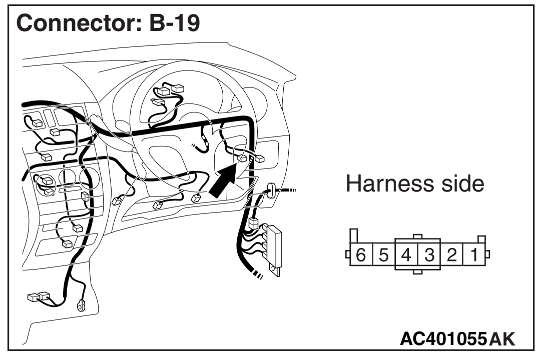
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Check the fog lamp switch.

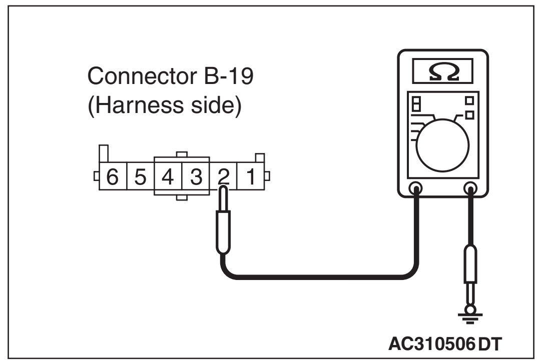
Refer to GROUP 54A – Fog lamp P.54A-79.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the fog lamp switch.

Step 3. Resistance measurement at the B-19 fog lamp switch connector.



(1) Remove the fog lamp switch, and measure at the wiring harness side.

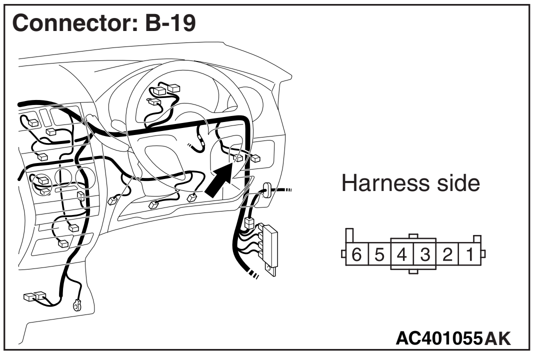


(2) Resistance between B-19 fog lamp switch connector terminal No.2 and body earth

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness from B-19 fog lamp switch connector terminal No.2 to body earth.



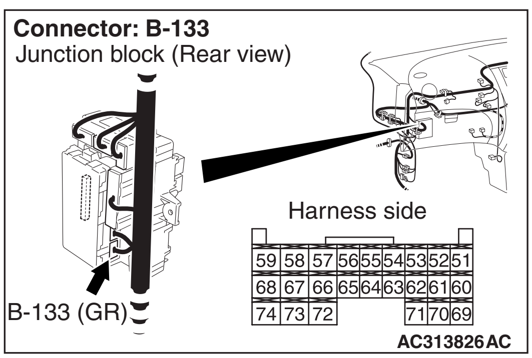
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

Step 5. Connector check: B-133 ETACS-ECU connector

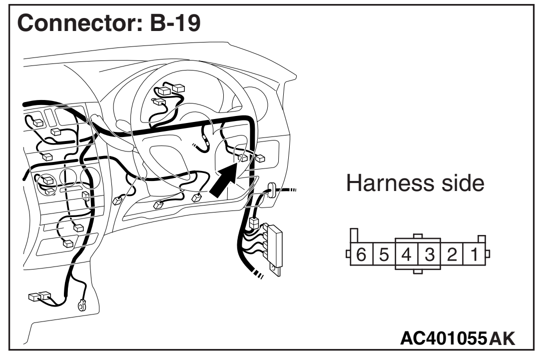


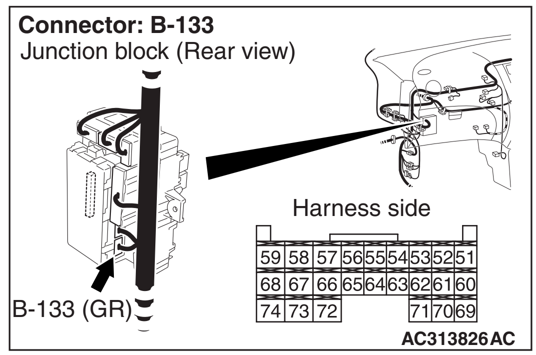
Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

Step 6. Check the wiring harness from B-133 ETACS-ECU connector No.58 to B-19 fog lamp switch connector terminal No.1.





- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

Check that the fog lamp switch signal is received normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

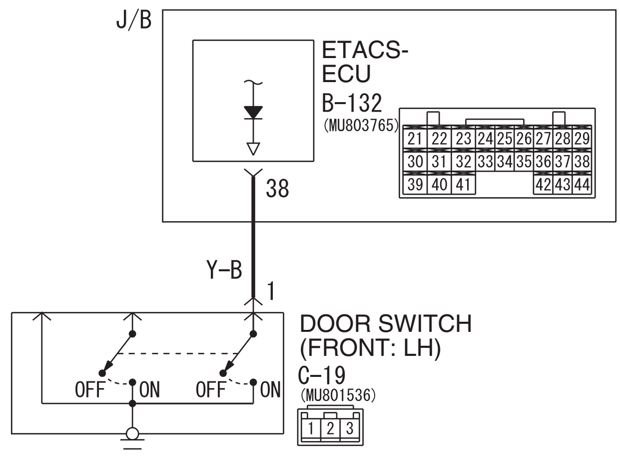
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INSPECTION PROCEDURE N-14: The passenger's door switch signal is not received.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Passenger's Door Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the passenger's door switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Power window timer
- Door-ajar warning lamp

POSSIBLE CAUSES

- Malfunction of the passenger's door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

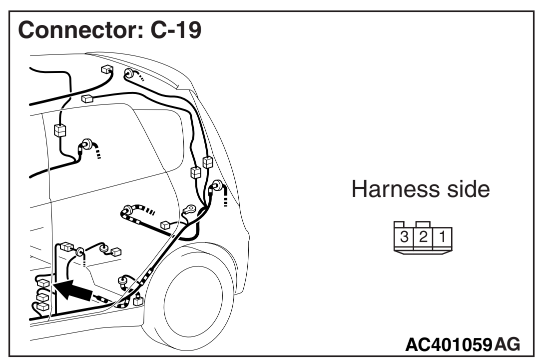
Step 1. Check the installation condition.

Check that the door switch (front: LH) is installed on the body correctly.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Correct the installation condition.

Step 2. Connector check: C-19 door switch (front: LH) connector.



Q: Is the check result normal?

YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Check the door switch (front: LH).

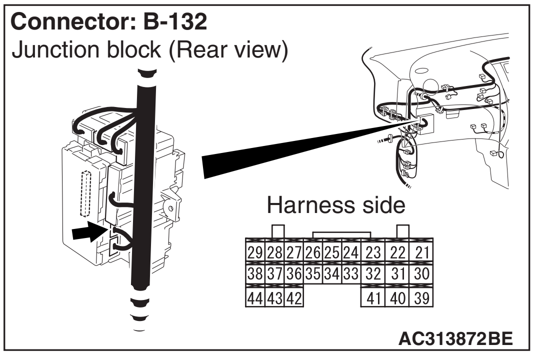
Refer to GROUP 42 – Door P.42-39.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Replace the door switch (front: LH).

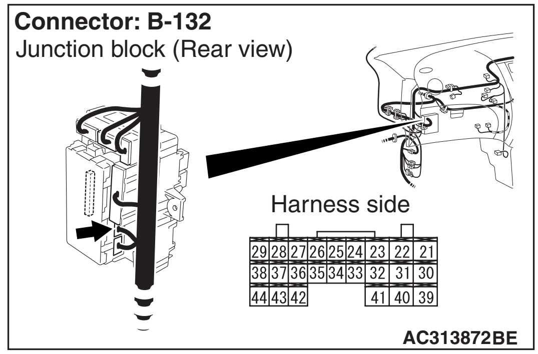
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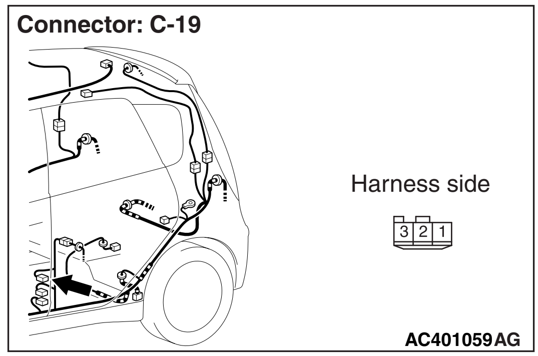
Step 4. Connector check: B-132 ETACS-ECU connector.



Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the wiring harness between B-132 ETACS-ECU connector terminal No.38 to C-19 door switch (front: LH) connector terminal No.1.





- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the wiring harness.

Step 6. Retest the system.

Check that the door switch (front: LH) signal is received normally.

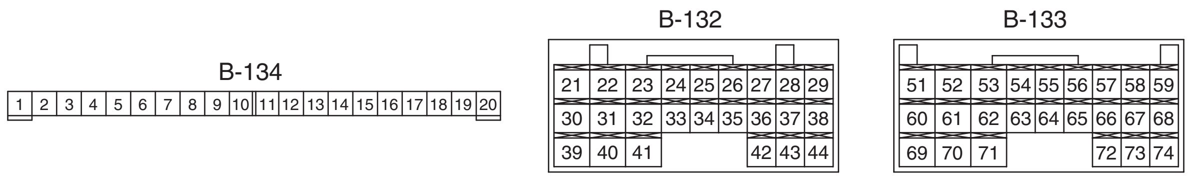
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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CHECK AT ECU TERMINAL

M1549001201086

ETACS-ECU



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NOTE: Terminal numbers 1 to 20 can not be measured as the ETACS-ECU is mounted on the junction block directly. The values are for reference only.

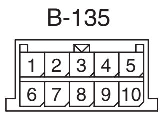
Terminal No.	Check item	Check condition	Normal condition
1	Power supply to the central door locking system (battery positive voltage)	Always	System voltage
2	Earth (for ECU)	Always	0 V
3	Output to left turn-signal lamps	When the left turn-signal lamps are on	System voltage
4	Output to right turn-signal lamps	When right turn-signal lamps are on	System voltage
5	Power supply to hazard warning lamp (battery positive voltage)	Always	System voltage
6	Input of windshield wiper automatic stop signal	When windshield wiper is operating	System voltage
7	Output to windshield wiper (high speed operation)	When windshield wipers are operating at high speed	System voltage
8	Output to windshield wiper (low speed operation)	When windshield wipers are operating at low speed	System voltage
9	Windshield washer output	When windshield washer is operating	System voltage
10	Ignition switch (ACC)	Ignition switch: ACC	System voltage
11	Ignition switch (ACC)	Ignition switch: ACC	System voltage
12	Rear washer output	When rear washer is operating	System voltage
13	Rear wiper output	When rear wiper is operating	System voltage
14	Input of rear wiper automatic stop signal	When rear wiper is operating	System voltage
15	Output to tail lamps	When tail lamps are on	System voltage
16	Battery power supply (for tail lamp)	Always	System voltage
17	Output to low-beam headlamps	When low-beam headlamps are on	System voltage
18	Output to room lamp	When room lamps are on	2 V or less
19	Output to high-beam headlamps	When high-beam headlamps are on	System voltage

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Terminal No.	Check item	Check condition	Normal condition
20	Battery power supply (for ECU)	Always	System voltage
21	Output to electric retractable remote controlled mirror (RH)	When the door mirrors are unfolding	12 V
22	Output to central door locking (for unlocking the doors other than the driver's door)	When the door lock actuators unlock the doors	System voltage
23	Output to central door locking (for locking the doors)	When the door lock actuators lock the doors	System voltage
24, 25	–	–	–
26	Input to driver's door lock actuator (lock switch)	Driver's door lock: Locked	0 V
27	Input from remote controlled mirror switch (fold/unfold switch)	Remote controlled mirror switch (fold/unfold switch): ON	0 V
28, 29	–	–	–
30	Output to electric retractable remote controlled mirror (LH)	When the door mirrors are unfolding	12 V
31 – 34	–	–	–
35	Input to driver's door lock actuator (unlock switch)	Driver's door lock: Unlocked	0 V
36	Input to driver's door lock actuator (lock switch)	Driver's door lock: Locked	0 V
37	–	–	–
38	Input to door switch (front: LH)	Door switch (front: LH): ON (door open)	0 V
39	Output to electric retractable remote controlled mirror (RH)	When the door mirrors are folding	System voltage
40	Output to electric retractable remote controlled mirror (LH)	When the door mirrors are folding	System voltage
41	Input to driver's door lock actuator (unlock switch)	Driver's door lock: Unlocked	0 V
42 – 44	–	–	–
51	Input to door switch (front: RH)	Door switch (front: RH): ON (door open)	0 V
52	Setting diagnosis code or sending input check signal	When diagnosis code is set (the M.U.T.-III is connected or the diagnosis connector No.1 is earthed)	0 to 12 V (pulse signal)
		When input check signal is sent	0 V, 12 V (input signal is fluctuating)
53	Input to key reminder switch	Key reminder switch: ON (ignition key removed)	0 V
54	SWS communication line	Always	0 to 12 V (pulse signal)
55 – 57	–	–	–

Terminal No.	Check item	Check condition	Normal condition
58	Input to fog lamp switch	Fog lamp switch: ON	0 V
59	Out put to power window relay	When the power windows are operative	System voltage
60	Back-up input from headlamp switch	Headlamp switch: ON	0 V
61	Input from all the door switches	One of the door switches: ON (door open)	0 V
62	Output to ignition key cylinder illumination lamp	When ignition key cylinder illumination is on	2 V or less
63	Input of SWS request signal	Always	0 to 12 V (pulse signal)
64	Back-up input from windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
65, 66	–	–	–
67	Output to fog lamp	When fog lamp is on	System voltage
68	Power supply from ignition switch (IG1)	Ignition switch: ON	System voltage
69	Input from diagnosis control	When M.U.T.-III is connected	0 V
70	Earth (for sensor)	Always	0 V
71	Input to hazard lamp switch	Hazard lamp switch: ON	0 V
72	–	–	–
73	Input from windshield intermittent wiper volume	Turn the ignition switch to the ACC position, and move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
74	Ignition switch (ACC)	Ignition switch: ACC	System voltage

COLUMN SWITCH



AC207563AB

Terminal No.	Check item	Check condition	Normal condition
1	System voltage	Always	System voltage
2	Input of SWS request signal	Always	0 to 12 V (pulse signal)
3	SWS communication line	Always	0 to 12 V (pulse signal)
4	Earth	Always	0 V
5	–	–	–
6	Output to windshield intermittent wiper volume	Ignition switch: ACC Move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
7	–	–	–
8	Back-up output to windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
9	Power supply from ignition switch (IG1)	Ignition switch: ON	System voltage
10	Back-up output to headlamp switch	Headlamp switch: ON	0 V